Measurement of Social Competence

Edgar A. Doll

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Measurement of Social Competence

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The Measurement of Social Competence

A Manual for the
Vineland Social Maturity Scale

by

Edgar A. Doll

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To the memory of

EDWARD RANSOME JOHNSTONE

Wir lernen so viel als wir leben,
und wissen so viel als wir wirken.

—**Unidentified.**

Acknowledgments

There is a destiny that makes us brothers.
None goes his way alone.
All that we send into the lives of others
Comes back into our own. —Edwin Markham

It is hardly possible to make due acknowledgment for the varied assistance received in a work of this kind. One feels that he is only the agent through whom many influences converge to a new end. Especially is this true when the outcome epitomizes a lifetime of varied observation, study, and instruction.

The initial inspiration for the present work may be said to date from undergraduate association with the late Prof. Guy M. Whipple, at Cornell, and the continuing interest in human development which he generously communicated to me. This beginning was augmented by intimate association with Henry H. Goddard in the days when the work of Binet, and research with the feeble-minded, were yielding a new orientation and a more profitable approach in the field of human development. I am also deeply indebted to many other associates and teachers whose specific influence it is now difficult to trace but which colors this entire volume.

Likewise the whole atmosphere within which this research has been conducted, and the cooperative sharing of ideas and effort, have afforded conditions and aid highly favorable to the present result. For this setting, and for generous support and freedom in working conditions, grateful credit is accorded the late Edward R. Johnstone, former Director of The Training School at Vineland, whose enthusiasm for research and the use of scientific method contributed so heavily to the welfare and the happiness of both normal and handicapped children. His successor, Walter Jacob, and the Board of Trustees of The Training School, continued that support in the later stages of this work.

Previous efforts are to be found in my early work on job analysis and training in correctional institutions in collaboration with Burdette G. Lewis and the late Wm. J. Ellis, at a time when Stanley D. Porteus was independently engaged in similar work on industrial and social rating scales; in work with Lloyd N. Yepsen which eventuated in his social adjustment score card; in association with Myra W. Kuenzel in the construction of a scale of industrial virtues; and in cooperation

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with Dr. Henry A. Cotton in the preparation of a scale for measuring mental deterioration and recovery.

These maneuvers anticipated the work on the present Scale. This was concretely begun with the assistance of S. Geraldine Longwell, now my wife, while studying the improvement of cerebral palsy patients receiving muscle training in collaboration with Dr. Winthrop M. Phelps. The initial form of the Scale and the first condensed manual were products of joint work which was extended from the birth-palsied to the feeble-minded, then to the normal, to variously handicapped groups, and to multiple social uses.

This initial formulation of the Scale was materially assisted by seminar and staff discussions with the author's junior colleagues at the Vineland Laboratory. Among these, especially helpful aid was obtained from J. Thomas McIntire, A. Douglas Glanville, and George Kreezer. At this period I also drew heavily on the more recent work in the literature of child development which has had such a vigorous expression during the past thirty years.

I am especially indebted to Katherine Preston Bradway for critical suggestions on method, for all data constituting the initial standardization, for records on the first re-examinations of normal subjects, for initial statistical treatment of data, for exploratory studies with deaf and with blind subjects and in the field of inheritance, and especially for work on the Thomson method and other statistical devices for item evaluation, scale calibration and validation. Mrs. Bradway also critically reviewed the final manuscript.

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Thanks are due the members of the Vineland research staff who collaborated in various exploratory applications of the Scale, to other authors and to libraries for access to unpublished studies, to those institutional superintendents and school authorities who cordially offered access to special populations for trial investigations, to Marianne H. Wasson for translating the study by Helmut von Bracken, to Noemi Morales for assistance in translating the Scale into Spanish, to my son Eugene E. Doll for counsel, several exploratory studies, and helpful review of the manuscript, and to the many research workers and correspondents whose critical interest induced specific improvements in formulation.

We are specifically indebted to the people of Vineland for their cooperative assistance in receiving our examiners and cordially assisting us in gathering of data. The Mothers Research Club of Vineland, at whose annual meetings at the Vineland Laboratory the early phases of this work were profitably discussed, gave invaluable early encouragement. Our initial normative data were obtained from the children of these parents in the initial stages of the investigation. Assistance was received also from a similar group associated with the parochial schools, through whom favorable home visiting contacts were established. Further aid was received from the local public school authorities and teachers.

The initial and revised preparation of manuscript has been the work of Florence C. Matlack, whose continuing sympathetic understanding, encouragement, and protection from distractions have contributed indispensably to bringing this work to print. I am also indebted to her for continuing assistance in reviewing and recalculating much of the data, preparing the final graphs and the index, and faithfully seeing the work through over fifteen arduous years.

To Lillian Note Dilg I owe cordial thanks for her unflagging editorial support and unlimited good will during the nearly four years of publication stages. And to the Educational Test Bureau for sparing no effort in the production. Also to Merle W. Tate for a critical reading of the statistical treatment of the basic data.

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Thanks are due the "children" and staff of The Training School at Vineland, New Jersey, for their cheerful collaboration. Only those at the immediate scene can know the cordial and effective manner and extent of their support. To all those who "belong" and have given so generously I express regret and pride that the list is too long for personal mention.

And over all is the aura of inspiration and esteem of Agnes Martz Doll and our growing sons Eugene and Bruce. Her confidence in me, and the home laboratory supplied by them, afforded a major source of motives and materials.

What can be said for indebtedness to the professional literature? Truly yesterday today was tomorrow; there is nothing new under the sun; we pillage the common heritage; all men are brothers. To burden this text with the library sources on which much of it is based, from which inspiration and utility have been freely drawn, or toward which warrant for authoritative support is directed, seems as futile as it would inevitably be tiresome. Since the original copy was either conceived or actually formulated prior to 1938 it is particularly difficult to document works which have appeared since about that date, although some supporting references are included, and specific contributions on the uses of the Social Scale are cited. The interested reader will find adequate recent treatment and ample references to topical background in the scholarly "Manual of Child Psychology" edited by Leonard Carmichael.

God keep me from ever completing anything. This whole book is but a draft—Nay, but the draft of a draft. Oh, Time, Strength, Cash, and Patience! —Herman Melville

Edgar A. Doll

VINELAND, NEW JERSEY

January, 1953

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PART I

PHILOSOPHY OF THE METHOD

Chapter 1. Introduction
Chapter 2. Postulates
Chapter 3. The Problem of Measurement

1

Introduction

Two little seeds awoke one day,
As seeds will do in the month of May,
But lo, and behold, they had clean forgot
If they were carrots or beets or what!
At length they decided that they must needs
Call a council of sixteen seeds,
Some said onions or beets; but no,
Others said it couldn't be so;
Some said turnips or celery seeds;
Some said lettuce; and some said weeds;
Then a sunflower spoke; "It may be slow
But the way to find out is just to grow!" —County Y's

Epitome. This volume presents the Vineland Social Maturity Scale for the measurement of social competence. It elaborates previous preliminary publications and includes the background of the method, detailed manual, basic data, preliminary standardization and validation, illustrative group and clinical application.

This scale is not just one more "testing" instrument in the field of human measurement. On the contrary, as a standardized method for the quantitative estimation of personal social maturation it presents a unique device for the overall evaluation of human behavior. Social competence is a universal human attribute. The measurement of its maturational degrees within known limits of error affords a new means for investigating its constituent variables and its significant relations to many human problems.

Attention has often been directed to the study of the organism as a whole, with corresponding deprecation of the dissectional analysis of human growth and behavior. Investigations concerned with single aspects of behavior such as physical growth, physiological functioning, intellectual endowment, behavioral adjustment, learning, and the like, almost inevitably fall short of holistic integration. Many thoughtful students appreciate the importance of treating maturation and adjustment in bio-psycho-social terms. But how shall we encompass the complete individual in his dynamic complexity? Decomposition is essential for an understanding of a compound, and reassemblage of elements is equally necessary to the integrity of the aggregate. The H_2O is not the water; the fractional distillates of human behavior may not reveal the unique self; the group is more than the catalogue of its members.

We explore here two fundamental considerations; (a) the ontogenetic evaluation of the individual as an independent social unit with emphasis on his subjective self-sustaining social adequacies, and (b) the individual as a cooperating and contributing member of the social group. The former scrutinizes certain developmental "operations" of the individual in their predominantly personal relevance as an important precondition of social self-sufficiency. The latter probes the extension of such personal activities into spheres of congregate welfare or their impingement upon other persons.

This relation of one person to another integrates individual with social psychology. Personal and subjective experiences acquire social significance when shared with other persons. The ultimate import of self-psychology derives from its social relevance. We are concerned here, then, with human behavior as ultimately capitalized in some relevant expression of social competence. This competence, we submit, may be conceived in terms of personal independence and social responsibility. Thus the social adequacy of the individual as a whole, with due regard for age and culture, is conceived as the social end-result of the physical, physiological, intellectual, habitual, emotional, volitional, educational, occupational aspects of personal growth, adjustment, and attainment which ensue from his constitutional predispositions and environmental impacts.

This social competence is not something static. It entails both phylogenetic and ontogenetic evolution and it varies with physical and cultural conditions according to time, place, and circumstance. Social competence may therefore be expressed in terms of age, status, opportunity, talent, health, degree of freedom, and so on.

In short, social competence may be defined as a functional composite of human traits which subserves social usefulness as reflected in self-sufficiency and in service to others. This concept postulates at all points a relation between constitutional aptitude and environmental activity and assumes that deviation or variation from the normal in these respects, whether arising from physical, mental, or social causes, is ultimately mirrored in some measurable increase, decrease, or other modification of social competence.

Consider for a moment some of the advantages of such a scale in its larger aspects. Our experimental evidence shows that it provides a fairly reliable and valid measure of genetic maturation and senescent decline in social competence. It expresses individual differences in such competence within definite limits of statistical deviation or co-variation. It reflects the influence of known variables. It therefore may be used as an indirect measure of its components; for example, such a constituent variable as mental age can be estimated from the measure of social age.

Of critical importance is the fact that *this scale does not require the presence of the subject for examination;* on the contrary, the standard method provides an examination of the subject *in absentia,* and therefore, if desirable, without his collaboration; e.g., if deceased or otherwise inaccessible to direct examination. This makes possible the plotting of retrospective growth curves and thereby reduces the limits of error in the prediction of further growth (by supplying more points for a given curve). By the same reasoning the Scale affords an immediate method of longitudinal as well as cross-sectional study.

Moreover, it yields not only a *measure* of total competence within the limits of definition, but also a somewhat detailed *description* or analysis of that competence. It provides a basic criterion for the study of environmental influences and comparative culture groups. It affords an objective quantitative method for family history study. Used as a developmental schedule for anamnesis it reflects precocity, retardation, alterations, or decline in growth. It serves to reveal the social consequences of such handicaps as deafness, blindness, insanity, delinquency, and other mental, physical, and social abnormalities. Translated in terms of the customs and attainments of "primitive" or ethnic groups it affords a useful scientific device in the field of cultural anthropology.

The present volume samples some of these possibilities. A few applications of the Scale have been investigated with some thoroughness; other explorations have been made as prototypic studies to demonstrate the practicability of the method. In spite of the serious preliminary work already accomplished, the present form of the Scale should be viewed as only the first step in the development of a method that merits extensive experimental evaluation. In view of the wide range of usefulness which such an instrument affords it is evident that particular areas of the Scale should be elaborated, more extensive normative standardization undertaken, and wider differential validation essayed in various fields of application.

The standardized interview procedure on which this scale is based is itself a relatively new departure in the field of human measurement. While the Scale is constructed on the same principles as the Binet-Simon scale for intelligence, the manner of its employment is radically different. In spite of preconceived objections to the method of interview as applied to precise measurement, the evidence herein indicates the practicability of the definitive interview technique.

Origin of the Scale. In the course of various investigations on these propositions we ultimately designed the present procedure. About 1925, The Vineland Laboratory was engaged in studies of job analysis of training procedures (Buhl, 1928; Doll, 1924, 1929a; Kuenzel, 1928)* as an expansion of the techniques of industrial occupational analysis previously employed in the correctional institutions of New Jersey (Doll, 1920, 1921, 1926; Doll and Kuenzel, 1930). Occupational, classroom, and cottage training situations were reduced from their overall extent to relatively specific unit operations. This work led to the designing of experimental score-cards for the measurement of learning in occupational situations (Kuenzel, 1929), adjustment in social group relations (Yepsen, 1928), and improvement or recovery (Doll, 1929b) among hospital patients (see Chapter 3).

These efforts soon proved helpful in another direction. In 1928, systematic muscle training was begun at The Training School for a group of mentally deficient and mentally normal patients with motor handicaps produced by intracranial birth lesions (Doll, 1933a). In undertaking to measure the improvement of these patients under treatment we endeavored first to observe the nature of the anticipated progress and then to gauge its amounts (Melcher, 1930). Amelioration was expected in body mechanics through increased facility of movement at the various joints, enhancement of muscle tone, and smoother timing of antagonists. This was essentially a neuromuscular problem which was primarily the mutual responsibility of the physical therapist and the examining orthopedist. Various attempts to measure such benefits proved clinically unsatisfactory. We finally concentrated on a different problem, namely, the gains in total performance of the individual from the point of view of social usefulness, or the practical capitalization of rectified body mechanics as expressed through increased personal adequacy (Longwell, 1935).

---

* References in parentheses apply to authors and related years of publication in the list of references at the ends of the same chapters in which they occur.

The problem was complicated by the wide variation in the characteristics of the patients (Doll, 1933b). They represented both sexes, life ages from two to fifty years, mental ages from two to thirteen years, and mental conditions from low-grade imbecility to mental superiority. The motor handicaps ranged from almost complete helplessness to relatively minor incoordination.

Obviously, such a study required anticipation of improvement through growth and development as well as from treatment, and the possibility that these might be interdependent. This led, naturally, to a consideration of maturation versus amelioration. The problem seemed simple enough until we attempted to use our knowledge of genetic psychology in so practical a manner.

A staff seminar was organized to canvass the field. The literature of child study was found rich in general orientation but barren of details that could be employed for the systematic appraisal of individual social development. In this respect the situation was much the same as that which confronted Binet and Simon when they first proposed their scale for measuring intelligence (Binet and Simon, 1916). To employ an engineering simile, preliminary survey lines had been run but there were no accurate devices for chaining, and no satisfactory instruments for determining levels.

In the field of psychometry a wealth of material was available. But our problem was not one of adapting mental tests as indirect measures of social aptitude. Our task was to measure attainment in social competence considered as habitual performance rather than as latent ability or capacity. Mental traits could not be ignored as components, but their direct measurement was to be avoided except as contributing factors and for controlling interpretation.

The wide range of our subjects in developmental status and motor handicaps required that we encompass the entire period of normal maturation and that we consider all factors contributing to social maturation, such as intelligence, motor facility, training, experience, motivation, conduct, environmental circumstances. Our goal was to appraise the social *effects* of these participating variables while avoiding their isolated measurement, to evaluate their integrated capitalization rather than their specific roles.

At this point we adopted the method of Binet and Simon by postulating a developmental central factor (corresponding to their "judgment," or Spearman's *g*) operating in combination with various specific or group factors. This central factor we loosely conceived as progressive self-direction culminating in the direction and protection of others.

Unlike Binet and Simon, we sought to measure *accustomed* performance in mastered attainment rather than innate capacity for solving novel problems. Like them, however, we were obliged to follow the principle of sampling representative performances from which general performance might be inferred.

The conclusions from these considerations were not immediately self-evident. On the contrary, our initial attack served only to emphasize the difficulties without more than faintly suggesting their resolution. We were obliged for a time to content ourselves with the less ambitious task of appraising the immediate consequences of muscle training in specific directions.

Progress schedule. Capitalizing our earlier experiences we then formulated a tentative systematic performance schedule arranged as a descriptive progress chart. The categories of this schedule included items on the motor aspects of locomotion, dressing, bathing, eating, speech, writing, and eliminative control. For each of these categories a number of detailed performances were arranged in presumptive order of progressive difficulty. With the exception of the items on speech and writing, most of the categories were fairly complete from the easiest to the most difficult tasks for the developmental period corresponding to infancy and early childhood. This made it possible to score each patient in terms of the entire schedule and thus determine his overall progressive status regardless of the variables of sex, age, mental age, diagnostic classification, and motor handicap.

This uniform chart enabled us to rescore each patient at successive time-intervals and note such changes as might have taken place. For this purpose the child was observed, the physical therapist interviewed, and the patients' cottage attendants carefully questioned as to the extent to which each item was usefully performed, and as to the habitual or emergent nature of such performances. On some items the child was actually "tested," but the progressive or habitual extent to which the performance was revealed in daily behavior was deemed more significant.

This study was carried out over a period of three years with birth-palsied subjects receiving muscle training (Longwell, 1935). As the work progressed it became evident that we were employing a device with significant possibilities for estimating the social improvement or genetic social maturation of the feeble-minded in general. Accordingly we set ourselves the task of extending this schedule so as to encompass a wider variety and range of activities. This task was undertaken early in 1934 and the first draft of the final scale was completed in July of that year.

Further evolution. Tentative examinations were made of a number of trial subjects with this rough draft. These were normal and feeble-minded, juvenile and adult, low-grade and high-grade, male and female. The Scale was still only a series of items arranged in presumptive order of difficulty. These first results led to rearrangements, rejections and additions and also provided preliminary year-scale groupings. The modified draft was submitted to the executive staff (department heads) and to the full research staff of The Training School for critical evaluation. Helpful suggestions and general approval encouraged further work.

By this time the need for precise definition of items was apparent as well as for a systematic method of administration and scoring. After numerous formulations, which incidentally led to further modification of items, a fairly stable preliminary manual of procedure was worked out.

From the data obtained on a relatively small number of subjects, experimental Form A was evolved. This was presented for discussion at the annual meeting (1935) of the American Orthopsychiatric Association and published in its Journal (Doll, 1935a). Favorable reception led to releasing the Scale to a few colleagues for collaborative experimentation.

To facilitate such collaboration a preliminary brief manual was published (Doll, 1935c). Further data on normative standardization and feeble-minded validation were soon presented at the annual meeting (1935) of the American Association on Mental Deficiency and published in the Proceedings of that Association (Doll, 1935b).

As experience with the method gave assurance of its merits, a systematic program of standardization and validation was carried out (Doll, 1936a). The many studies ensuing from that program both at Vineland and elsewhere over the subsequent years delayed the preparation of the elaborated manual and formal report of substantiating data now presented herewith.

These investigations, fortified by extensive correspondence with collaborating workers, generally confirmed the practicability of the method and yielded further refinements. Form B and a revised condensed manual were published (Doll, 1936b), and the method was released for general experimental use. We further tested the efficacy of the method and sought additional clarification of various difficulties. This was accomplished (1) by applying Form B with various types of handicapped subjects such as deaf, blind, delinquent, and insane; (2) by investigating such influences as inheritance and culture in family strains, with twins and siblings, with Negroes and Pueblo Indians; (3) by demonstrating its clinical usefulness in social, educational and psychological casework; (4) by exploring its administrative ramifications and its feasibility for appraising fictional characters and biographies. In particular we began longitudinal growth studies of both normal and feeble-minded subjects. The results of these and other experimental evaluation of the method and its versatile potentialities are summarized in subsequent chapters, especially Parts IV and V.

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2

Postulates

> *Maturity is not dated on any*
> *calendar, nor is it achieved at a given day*
> *like a twenty-first birthday and the right to*
> *vote. The maturity of adulthood is the outcome*
> *of lifelong growth. A child begins to grow up*
> *the minute he is born. He may be "grown up"*
> *at any level, provided he is making use of the*
> *potentialities and adjusting to the needs inherent*
> *in that stage of his development. In this sense*
> *"growing up" is a process which is continuously*
> *going on—in infancy, in childhood, in adolescence*
> *and on throughout life.* —Child Study

Major premises. This book explores the following assumptions:

1. Social competence may be defined as the functional ability of the human organism for exercising personal independence and social responsibility.

2. This competence may be measured progressively in terms of maturation by sampling its genetic stages by means of representative performances at successive life ages.

3. Such maturation may be taken as a practicable measure of the changing organism as a whole, as an epitome of the useful capitalization of all minutiae of detailed structures, functions and experiences of the integrated personality.

4. Individual status in social competence may be expressed in terms of numerical and descriptive deviation from established maturational norms and evaluated in terms of related variables.

5. The Scale proposed herein affords a unique procedure for the measurement of individual social competence in its group and clinical ramifications.

6. Such measurement provides a valid means for the scientific pursuit of many relevant social studies.

The treatment of these propositions will involve some repetition. Re-statement of standpoint will clarify diverse emphases. The argument may first be expounded in terms of some of the postulates which underlie the construction of the Scale.

Biological orientation. Capacity for survival is a universal attribute of all things. That this capacity may be greater or less, and variously displayed, from matter to man, Smith to Jones, or cave to penthouse adds to its fascination by the very diversity of its expression (Allee, 1938; Bradley, 1938; Jennings, 1930). From gas to cell, cell to organism, organism to society, without survival there would be void.

Added to the capacity for survival are the attributes of variation and modifiability. Matter emerges in structure, structure induces function, function leads to integration, and individual behavior merges into group action, in the great cycle of creative synthesis we call emergent evolution (Newman, 1926). Such evolution is ontogenetic and phylogenetic, personal and social, idiosyncratic and cultural, normal or deviate, and to an appreciable extent reciprocally interacting (Briffault, 1927; Cowdry, 1930; Dorsey, 1925; Pressey, 1939; Yerkes, 1929).

In this complex of Nature each element, compound, or substance has properties which uniquely reflect its holistic role in some global setting. And each of these modifies the organismic effectiveness, total adequacy, or useful value of part structures as exercised in relation to other parts and the integrated whole. If we may consider this exercise as function, then the adequacy of matter may be described in terms of its effects on other matter in specific or general relationships.

The human organism is a complex example of these generalizations (Cannon, 1932; Carrel, 1935; Crile, 1916). Its capacity for survival derives from multiple aptitudes which in their togetherness are expressed as self-sufficiency or personal independence, of greater or less degree and of varied expression. It also has relations to other organisms, principally human for our purposes, which we may term social exchange. It has personal functions which reflect its total structure and the sum of its experiences. And it exercises these functions in relation to other individuals of its social scene.

We may further observe that the capacity for structural survival and functional adequacy in the organic world is roughly correlated with age and species. As the organism grows structurally it matures functionally in a cycle of development and deterioration, of evolution and involution. The tempo and pattern of this maturation determine the progressive adequacy of the organism for both personal and group action.

The human infant is dependent on his elders for survival, but with advancing years gradually attains relatively complete self-sufficiency (Goodenough, 1945). This increase in personal independence is accomplished by correlative maturation in responsibility toward others. For example, among the mentally subnormal the adult idiot fails to mature beyond the level of adequacy of the normal infant in personal independence, while the grown moron never achieves effective adult responsibility for others. At the stage of senescent involution the previously normal adult may regress to a "second childhood" (Cowdry, 1942).

Growth potentials. All organisms begin life with a genetic potential for growth. In its simplest forms this growth is mere expansion in size or volume without appreciable elaboration of parts. In multicellular organisms such growth is accompanied by development, with differentiation of parts in complexity and function. This physical diversification is paralleled in greater or less degree by modification of behavior which increases in variety and scope as the organism matures (Carmichael, 1946; Coghill, 1929; Graubard, 1936).

Rates of growth and development show individual differences within a given species, although the patterns of differentiation are relatively constant (Gesell, 1934, 1938, 1939, 1940; McGraw, 1935; Shirley, 1931, 1933). The evolution of behavior varies from phylum to phylum, but is more or less constant in a given genus or family. As the organism reaches later stages of maturity, and correspondingly advanced degrees of complexity, the order and type of behavioral development tend to depart from that which is constant for the species as determined by genetic potential, and become more or less individualized in relation to environmental circumstances and adaptation to milieu (Ellis, 1928; Gilliland, 1933).

Let us apply these general principles to the development of behavior in the human species. The child is born apparently helpless. Yet not entirely so, for certain vital functions are present not only at birth but before birth, and the same is true of some relatively unorganized movements. At birth certain forms of reflex behavior are obvious, such as nursing, grasping, and the more or less total, vague, or random motor responses to sensory stimuli. Inventories of prenatal and neonatal behavior are becoming increasingly definite in the enumeration of specific and general movement complexes (Carmichael, 1946).

If from this extremity, we leap to an examination of the behavior of superior adults in their prime, we observe such variety, complexity, and individuality in behavior that one finds it practically impossible to catalogue their forms and extent (Grabbe, 1939; Korzybski, 1933; Thorndike, 1940; Werner, 1948; Young, 1943). The mechanics of such behavior and the underlying principles are becoming increasingly understood, but need not concern us here. For our purposes, such behavior may be viewed in functional terms as the maturational adaptation of the individual in and to his environment. The adaptive behavioral *forms* are specifically modified by time, place and circumstance, but their nature and extent are biologically and morphologically predetermined by genetic potential.

The relative influence of nature and nurture has long been debated. This question is enjoying a current revival of interest, especially among psychologists. The surge of conviction is seldom one of heredity *or* environment but the relative influence of each in the total development and attainment of the organism (Howells, 1945; Werner, 1948).

That environmental conditions can materially alter the expression of hereditary potential is now clear enough (Plant, 1937; Stockard, 1931). But such alteration tends to require conditions which are so specifically abnormal to the species under consideration as to produce pathological modification. Or the conditions are so unusual as to lose significant relevance by their very rarity, and the *amounts* of alteration due to minimum or optimum conditions surrounding ordinary maturation are relatively small as compared with the hereditary potential. Even the environmental modification of hereditary potential through selective mating operates within relatively narrow limits as compared with the destiny of species.

Attention to these (relative) minutiae of environmental modifications for most organisms and under typical conditions tends to obscure the basic biological perspective (Needham, 1941). Thus dogs do not beget kittens even if their progeny are "reared" in a state of chronic alcoholism. Nor are chicks wont to swim, however skilled their instruction. On the other hand the primitive may learn to hunt but not to read, and the slum dweller vice versa. So also the smithy develops strong muscle while the tea taster acquires keen sensitivity.

An interesting example is apparent in the training of Seeing Eye dogs. Only certain breeds (or exceptional individuals) have been found to profit from such training. Following two months of obedience training the animal is then instructed in judicious *dis*obedience (where obedience would be hazardous to the master) or the exercise of purposive initiative and judgment. Some animals prove unsuited to this second stage of training. No selective "tests" have yet been devised for the selection of animals who will prove successful at this more advanced stage of competence.

Whatever the merits of such argument, we herein assume that biological endowment predetermines minimum and maximum levels of maturation while cultural influences affect expression within these limits—when it is a question of assigning relative weights to either. Both may be modified within limits by environmental agencies. Yet man remains human, and beast remains brute. And man throughout history, no matter what his environment, eats, dresses, moves about, talks, works, plays, and acts purposively. His own influence *on* that environment as well as *its* influence on such activities become susceptible to investigation when typical behavior in a defined milieu is subjected to standardized measurement.

Environmental modifiability. In the simpler organisms behavior is relatively unmodifiable, even though it may be extraordinarily complex (e.g., among the insects). Such behavior is commonly said to be instinctive, or the product of inherited neuron patterns; however varied it is not appreciably variable. That is, the limits of modifiability of behavior are narrowly circumscribed. Nevertheless, even here there is definite evidence of some modifiability through adaptation to the environment.

In the human species modifiability of behavior is at a biological maximum though still constitutionally limited. Its nuances are accomplished through spontaneous adaptation, imitation, formal education, self-instruction as different modes of learning. Indeed, as Thorndike put it, the human individual modifies what he learns as well as being modified by it, not merely by passive receptivity to surrounding influences, but by active reaction to them. In this way man dominates his environment and his social relations, controls the environment within limits, or interacts with the environment rather than simply reacting to it. Instead of merely "cooperating with the inevitable" he seeks to master or at least to alter his destiny.

Behavioral modalities. Behavioral adaptation is a coordinated process, but the pattern of the component details may amplify now this, now that, facet (Boring, 1933). These specialized aspects of behavior may be logically isolated for study, but are rarely seen alone, and then only in the earliest stages of their development. Pure sensation almost immediately becomes perception, and perception at once involves correlated experience. Isolated stimuli quickly become invested with related stimuli by immediate association, and simple responses soon become more or less complex through diffusion of reaction. The mechanically exact tropisms of our prototypes are among us at least more subtly disguised.

Hence, although we may talk about simple sensation, movement, memory, feeling, and ideation, and refer to their more complex forms as perception, skill, habit, sentiment, and thought, we do this always with the reservation that these phases of behavior are almost never seen in isolation, but always in more or less integrative association (Angyal, 1941). When we discuss these particular aspects of behavior as if they were independent, we are really describing that detail of a totality which is for the moment of the greatest interest, seldom separable from the entirety, but for the time being its most significant feature.

Behavioral components. Not forgetting this essential impracticability of segregating special types of behavior as independent of each other or of the organism as a whole, we do nevertheless for convenience of description and analysis separate some forms of behavior for special study on the basis of their most characteristic components (Warren, 1934). Thus, if we are interested in the motor coordination aspect of a particular total-response situation, we may label this as skill, even though without attention, motivation, memory, and the like we should have no directed activity. Or, if we are concerned with the reproductive aspect of behavior, we may speak of it as memory. And if this memory is cumulative, organized, and assimilated, we may speak of it as learning. When its most important feature is rational comprehension, we may label behavior as purposively adaptive and refer to its capacity for such expression as intelligence. When repetitively organized for relatively automatic or standardized response, behavior becomes habit.

Likewise, we may be concerned with more than one such feature of behavior isolated from the totality, while still not forgetting that all phases of behavior are always present in greater or less degree. Thus, we may use the word sentiment as meaning ideas compounded with feelings, or consider personality as representing the characteristic (manifold) individual response attitude. Learning may refer to isolated achievements or to such complex acquisitions as trade skills, social habits, general knowledge, formal conduct, and the like.

Focus of behavior. Our major interest in developing a social maturity scale is directed toward the measurement of that complex of behavior which engenders personal and interpersonal social competence. It has been said that no human behavior is significant except in terms of its social import. Just as there is no sound, but only vibration, without a listening ear to sense it, so there is no worth to behavior except as there is some situation in respect to which that behavior is pertinent. Literally, of course, behavior may be significant for the person himself in social isolation, but such situations are exceptional or temporary (Gesell, 1940; Singh, 1942). Social behavior may therefore be viewed as the ultimate focus of integrated behavior.

Maturation principle. From these premises we infer that it is possible to observe certain behavioral complexes as specially significant in those aspects of growth and development which effect an increasing identification of the individual with his social environment (Carmichael, 1946; Morgan, 1942). Such behavior may first be viewed as the extent to which the individual fends for himself or increasingly attends to his own needs, privileges, duties, and responsibilities according to his age and social surroundings. We note at once that this social independence, considered as one aspect of individual social competence, is progressive and follows a fairly definite course from birth to senescence. In other words, social behavior expands or contracts as an accompaniment of mental and physical ontogenesis or decline.

Such behavior normally becomes increasingly complex in type and varied in expression with advancing age. It reveals a conative ingredient which induces the individual to seek progressive domination of his environment by taking over the authority and responsibility for his own acts. This is first expressed as an increasing demand for freedom from the domination of protectors, elders or superiors, and conversely as an assumption of authority over dependents, juniors and inferiors.

In short, the individual moves from helplessness to independence, then to helpfulness, and again to dependence. In early infancy he must rely upon others for subsistence and for those personal needs which he is unable to provide for or attend to himself. Gradually a self-help type of behavior becomes organized with increasing exercise of personal initiative and resourcefulness. When this enables him to satisfy his immediate wants he becomes self-directive in his social relations, stretching the apron strings to their elastic limit. Following emancipation from the disabilities and restraints of childhood and youth he emerges into adulthood, responsible now for himself and assuming his share of group and family responsibility for the continuity of the race, its society and its welfare. He is now a contributing member of that society and repays to it and to his family the services rendered him previously by them. His bio-social compulsive aspirations lead him beyond the necessities of mere survival to add his mite to the social and familial heritage of his world. Finally, with the infirmities of age reducing him to senescent dependence he completes the endless cycle by an involutional return to his original helplessness (de la Mare, 1935).

> ". . . Though we dye but once, yet do not we dye at once: We may make, yea we do make many assaies or tryals of dying: Death insinuates it selfe, and seizeth upon us by peecemeals; it gives us a tast of it self: It is the Cronie, or Consort of life: So soon as we begin to be, wee begin to wast and vanish; we cannot ascend to life, without descending towards death: Nay we begin to dye before we appeare to live; the perfect shape of the Infant is the death of the *Embryo,* childhood is the death of Infancie, youth of Childhood, Manhood of youth, and old age of Manhood. When we are arrived at this last stage, if we stay any long time in it, and pay not the debt we owe, death requires interest; she takes his hearing from one, his sight from another, and from some she takes both: The extent and end of all things touch their beginning, neither doth the last minute of life do any thing else, but finish what the first began . . . Life is a Terrace-walke with an Arbour at one end, where we repose, and dream over our past perambulations. . ."

Categorical aspects. For our purposes we may label this evolution as social maturation. Such maturation has at least three major dimensions, (1) from dependence to independence, (2) from irresponsibility to responsibility, and (3) from incompetence to competence. Actually the degree of social competence is here viewed as the synthesized expression of the progressive independence and responsibility which signify social maturation. By social competence we here mean more than the creative or productive phases of behavior. To such occupational pursuits we must add social cooperation, social intercourse, social mobility, social self-management, and social self-assistance. These in their altogetherness determine the degree of selfish and philanthropic attainment. It is only for purposes of clarity and convenience that they may be considered separately.

We note at once that the child at birth is relatively helpless. Although he can nurse, he must be placed to the breast; although he can grasp and hold, objects must be placed within his reach or in his hands; although he vocalizes, his "vocabulary" is unarticulated. His early expressive development is essentially sensori-motor. His initial behavior is uninhibited and poorly coordinated. His personal competence is grossly limited.

When he learns to roll over instead of having to be turned over, this may be viewed as an early step toward personal independence or self-help. If he grasps objects within reach, these do not have to be handed to him. Such performances increase in number, variety, and complexity, pursuing normally a fairly constant order but at a somewhat variable rate.

These modes of behavior soon become categorically differentiated as well as specifically elaborated (Carmichael, 1946). Thus, even in the first six months of postnatal life there is some achievement in communication, self-help, socialization, occupation, self-direction, and locomotion. As we observe the course of development, all these major categories of behavior are seen to be generally present, but of unequal importance and degree. The detailed performances within and among these categories are seen to be both co-extensive and overlapping with the result that given categories may predominate over others at different periods of development, or among different children of equivalent development.

The principal developments of early childhood are in the direction of self-help, with the other details of development principally subordinate or anticipatory. Similarly, self-direction items tend to predominate in adolescence, and socialization items in adulthood. Occupational items are present throughout the life span, but rise in importance in the adolescent and adult periods. Locomotion items appear significantly throughout the life period, and this is also true for communication items.

As noted later (Chapter 4), our method of approach to this problem was two-fold, first through an inventory of specific behavior that seemed to be fairly characteristic of given age periods, and second by an analysis of behavior categories which seemed susceptible to progressive definition. The outcome in both directions may therefore be described as the result of empirical observation and analysis rather than of logical or theoretical considerations.

For example, with respect to locomotion, we observe in children at successive life ages a continuing extension of freedom in personal and environmental mobility. From this we infer that "getting about" reflects a major category of behavior which can be formulated as a progression of detailed stages of increasing independence and personal responsibility. These achievements influence social competence and may be taken as one measure of it. Thus, we observe the new-born infant confined to his crib, getting about only as he is moved by someone else. Soon, by rolling over instead of being moved, he is able to "roam" within his crib from side to side or end to end. Later, as his motor coordination *and his personal social responsibility* enlarge and ramify, he moves from the crib to the room, and so increases his social horizon through independent (social) locomotion. With increasing responsibility he is permitted (or he insists upon) moving about the house, then to and about the yard, then about the immediate neighborhood, then within the remote neighborhood, and ultimately to unrestricted distant points. Such locomotion may be construed as social rather than as simply neuromuscular, for the individual enlarges thereby not only his independence, but also his opportunities for increased self-expression. And this accession of movements is attended by hazards which he learns to obviate *pari passu.*

Environmental circumstances. Obviously, such locomotion is limited by terrain, custom, dangers, means of transportation, expense, freedom, and restrictions, as well as by degree of personal social maturity and the restraints due to age, sex, degree of responsibility and the like. Consequently, the evaluation of social locomotion must be construed according to such exigencies. And this principle applies to all items of this scale.

We therefore note at once that the formulation of this scale is related to the central North American (United States) environment, and that flexibility must be allowed in scoring the item requirements with due regard for particular alterations from the generalized situation. For this reason, and as will appear later, it is impracticable to formulate the definition of items with unequivocal precision. However, the Scale as a system could be adapted to any environment which differs materially from that for which the standard scale is formulated and upon which it is normatively standardized and differentially validated. The reformulation or substitution of items necessary for such adaptation thus becomes a means for the study of local or comparative culture patterns or acculturation.

It would obviously be absurd to endeavor to apply the standard items of this scale, designed for the typical cultural environment of our day and country, without appropriate modification for other environments or times. This is important when there is occasion to use the Scale retrospectively for environments which have materially changed during the individual's life history (e. g., by migration from one environment to another), or in family history studies where the environment has changed materially with passage of time. Illustrations of such necessity for modification are set forth in later chapters on the use of the method under variable conditions, such as various types of personal handicaps and environmental restrictions.

It is also to be noted that social maturity and social competence are not identical concepts. Some of the items of this scale measure the former without consistent relatedness to the latter. We shall subsequently (Chapters 5, 6 and 13) discuss this issue in some detail.

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3

The Problem of Measurement

. . . Behold the child, by nature's kindly law,
Pleased with a rattle, tickled with a straw:
Some livelier plaything gives his youth delight,
A little louder, but as empty quite:
Scarfs, garters, gold, amuse his riper stage,
And beads and prayer-books are the toys of age:
Pleased with this bauble still as that before,
Till tired he sleeps, and life's poor play is o'er. . . —Alexander Pope

Common observations.

"My Anne does everything for herself now; she says everything; she goes everywhere."

"Johnny, you're old enough to do that. I'm tired of always looking after you."

"*Please,* Susan; you should know better! At your age I was. . ."

"Henry is such a problem. I can't control him any more. He insists on having his own way all the time."

"Sam is so shiftless. He has no responsibility, doesn't hold up his own end, doesn't even provide decently for his old mother."

"What a success Mr. Brown has made of his life! He is one of the leaders in our community, runs a big business, and is in everything. When you want something done, go to a busy person like him for help."

"Poor old father. He's getting so helpless; needs constant looking after. I have to do everything for him nowadays."

How commonplace these expressions are! What do they mean? They reveal a general appreciation of the process of growing up and the increasing responsibilities and duties which accompany such growth.

We all judge each other. It has been said that every man is his own psychologist. We evaluate our own behavior as well as that of others more or less closely in our everyday relations.

We do not need a scientific "test" to know that one person is stupid and another intelligent. We make such observations spontaneously. We lack only a formal analysis of how we reach such decisions and what the precise degree of ability is.

We deprecate having our own intelligence tested, yet each of our associates has already formed what is for him a satisfactory estimate of that intelligence. The correction of that estimate by formal measurement merely reduces the margin of error.

Likewise, without benefit of formal procedures we "know" that Jim Smith is a capable carpenter, Dr. Brown a competent physician, or Mrs. Jones a good mother. We call one friend phlegmatic and another optimistic; we say one is moody, another easily angered; so-and-so is rated an excellent student, while another can't seem to learn anything. All these individual differences in behavior are clearly apparent in the simplest social contacts. In such mutual appraisal of each other's aptitudes we note range of vocabulary and ideas, degree of education, readiness of comprehension, quickness of perception, spontaneity of reaction.

In the same way we "intuitively sense" the social worth or stature of our acquaintances and of comparative strangers. The more discerning among us even pass judgment on the stages and rates of development of growing children, or of adults who are "slipping." This is particularly true within the family where the ordinary parent continuously appraises the development of his children. He knows which of them are bright and which dull, which alert or unresponsive, and which capable or handicapped. Each of us has generalized ideas regarding development in relation to age, and some idea as to why these standards are exceeded or not yet reached among those so observed.

That this knowledge is only impressionistic does not prevent our making daily use of it. When the fond parent states that "Anne says everything", although Anne is only two years old, she means that her daughter says *everything that anyone would reasonably expect a two-year-old girl to say under the circumstances.* When the neighbor says that the child is old enough to know better, or to do this and that for himself, he is employing definite concepts of child development, even though he could not precisely formulate those concepts or define the standards he employs.

The same principles hold for judgments at successive life stages—in adolescence, in early manhood, in adult prime and in senescence. Such solicitous, admiring, or disparaging appraisals of others reflect wide-spread knowledge of development which is more assured in the field of social behavior than in other directions because of the more universal significance of social performances and the more frequent occasions for observing them.

On such ready evidence rest nearly all of our offhand estimates of development or capability. Social competence is a complex expression of many component aptitudes, being as a rule highly correlated with them. A socially competent person tends to be correspondingly dependable, energetic, emotionally mature; and the degree of each is inferred from the whole. Indeed, lack of such correlation calls for explanatory comment. One person is deprecated as intelligent but untrustworthy, another as skillful but improvident, another as well educated but "lacks punch." Whatever the degree of correlation, we take it for granted that a person's social competence is the coordinated sum-total of his specific abilities, and that this is an index of his stage of development.

Yet we also acknowledge that such "common sense" estimates are to a degree untrustworthy. So we turn to scientific measurement for confirmation. For science as "uncommon observation of the commonplace" commands a well-earned respect. Its measures are less haphazard (more systematized), less crude (more exact), less dubious (more reliable).

General stages of social maturation. The awareness of the social "ages of man" is as old as literature and as new as science. Whether we consult the ancient or modern classics in any tongue, the epitomes are much the same as that by Shakespeare:

> All the world's a stage,
> And all the men and women merely players;
> They have their exits and their entrances,
> And one man in his time plays many parts,
> His acts being seven ages. At first the infant,
> Mewling and puking in the nurse's arms.
> Then the whining school-boy, with his satchel
> And shining morning face, creeping like a snail
> Unwillingly to school. And then the lover,
> Sighing like a furnace, with a woeful ballad
> Made to his mistress' eyebrow. Then a soldier,
> Full of strange oaths, and bearded like the pard,

> Jealous in honor, sudden and quick in quarrel,
> Seeking the bubble reputation
> Even in the cannon's mouth. And then the justice,
> In fair round belly with good capon lined;
> With eyes severe, and beard of formal cut,
> Full of wise saws and modern instances;
> And so he plays his part. The sixth age shifts
> Into the lean and slippered pantaloon,
> With spectacles on nose and pouch on side,
> His youthful hose, well saved a world too wide
> For his shrunk shank; and his big manly voice,
> Turning again toward childish treble, pipes
> And whistles in his sound. Last scene of all,
> That ends this strange eventful history,
> Is second childishness and mere oblivion,
> Sans teeth, sans eyes, sans taste, sans everything. —*As You Like It*

And if we search the record of science, the observations are only somewhat more formally expressed, as in the summary by H. L. Hollingworth who adds three significant "ages" to complete the visible cycle:

HUMAN DEVELOPMENTAL STAGES*

PERIOD DESCRIPTION

1. The germ plasm—The career and permutations of germinal elements, representing biological heredity, and the contribution of determinants by near and remote ancestry.
2. The fetal period—The life of the embryo, from the moment of conception or ovum fertilization, to the time of birth.
3. The infant—The "neonate" or newborn individual, in its first few weeks or months of life.
4. The babyhood age—The first three years of life, up to the point which, if the individual does not intellectually pass, he remains an "idiot."
5. Questioning age—Centering at about the time of customary school entrance, at the sixth year, the point which, if the individual does not intellectually pass, he is characterized as an "imbecile."
6. "Big Injun" age—Culminating at about the eleventh year, the point which, if the individual does not intellectually pass, he is described as a "moron."
7. "The Awkward Age," adolescence—The typical high-school age, terminating at or around the eighteenth year, with wide variations.
8. Maturity—The long stretch of economic, political and domestic responsibility, running up to seventy years or thereabouts.

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*From HOLLINGWORTH, H. L. 1927. *Mental growth and decline.* New York: D. Appleton, (p. 45). Reproduced by permission of author and publisher.

9. Senescence—The period of decline, and in some cases of involution or senile decay.
10. Post-mortem age—That period, brief or prolonged, in which the personal influence of the individual persists and the institutions he has had a part in establishing remain effective.

Such epochal groupings have long proved useful for practical orientation. They indicate that there are gross periods of maturation which can be roughly distinguished from each other by characteristic level and type of social activity. But these groupings are also rather arbitrary, subjective, and correspondingly variable from one "grouper" to another. They lack both comprehensiveness and precision from period to period as well as from author to author, and this lack of specificity greatly limits the usefulness of the distinctions. Witness the whimsical taxonym of the Rotarian gastrologist:

DIETARY AGES

The eleven ages of man can be expressed in menu form as follows:

1. Milk.
2. Milk and bread.
3. Milk, bread, eggs and spinach.
4. Oatmeal, bread and butter, green apples and all-day suckers.
5. Ice cream soda and hot dogs.
6. Minute steak, fried potatoes, coffee and apple pie.
7. Bouillon, roast duck, scalloped potatoes, creamed broccoli, fruit salad, divinity fudge and demi-tasse.
8. Pate de foie gras, wiener schnitzel, potatoes Parisienne, egg plant a l'opera, demi-tasse and Roquefort cheese.
9. Two soft-boiled eggs, toast and milk.
10. Crackers and milk.
11. Milk. —*Philadelphia Rotary Club Bulletin.*

Techniques of social appraisal. Since Binet and Simon, this difficulty has been appreciably remedied. Their intelligence scale, and especially their year-scale method, opened new vistas of correlative study (Binet and Simon, 1916). We now have so many scales for appraising maturation in nearly all directions that it is impracticable to catalogue them or even to cite some without injustice to others.

The attempt to trace our own scale to these sources so that we might make due acknowledgment has proved too baffling to record here since we drew upon general awareness of these techniques rather than specific borrowings from them. And since those techniques had their own antecedents we might honestly enough claim to have been guided by the same. We therefore leave it to others to make a game of detecting such unconscious plagiarisms as may be more apparent to them than they are to us.

Our greatest debt is to Alfred Binet, whose original observations, experiments and ideas, supplemented by joint work with Th. Simon, we have freely employed throughout this work. Those not intimately acquainted with this background in the successive volumes of *L'Annee Psychologique* will find profit in the selected translations by Eliz. S. Kite (Binet and Simon, 1916), and in the able review by Edith J. Varon (1935).

That Binet and Simon anticipated the social ends subserved by intelligence is clear from their following classification:

TABLE of TRAITS DISTINGUISHING IDIOT, IMBECILE and MORON*

Degree of retardation.	Intellectual development compared to that of a normal child.	Social relations with other persons.	Nature of the tasks which these individuals can accomplish.
Idiot	Development of 0 to 2 years.	By gestures.	Grasp an object presented, walk, sit down, get up, etc.
Imbecile	Development of +2 to 7 years.	By speech.	Eat alone, dress, wash hands, keep clean, sweep, make a bed, shine shoes.
Moron	Development of +7 to 12 years.	By writing.	Comb hair, garden, wash, iron, make a hem or a darn, cook an egg or an onion soup.

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*From BINET, ALFRED, AND TH. SIMON. L'Arriération. *L'Année Psychologique*, 1910. Vol. 16, p. 353. Note that the translator has omitted "roll a hoop" from the imbecile tasks, and has substituted "or an onion soup" (perhaps too difficult) for "etc." at the moron level (Varon, 1935, p. 129).

Goddard carried this "nature of the tasks" a step further in his industrial classification of the feeble-minded by successive mental ages.

INDUSTRIAL CLASSIFICATION*

Mental Age	Industrial Capacity	Grade
Under 1 year	(a) Helpless. (b) Can walk. (c) With voluntary regard	Low
1 year	Feeds self. Eats everything	Middle Idiot
2 years	Eats discriminatingly (food from non-food)	High
3 ″	No work. Plays a little	Low
4 ″	Tries to help	
5 ″	Only simplest tasks	Middle Imbecile
6 ″	Tasks of short duration. Washes dishes	
7 ″	Little errands in the house. Dusts	High
8 ″	Errands. Light work. Makes beds	Low
9 ″	Heavier work. Scrubs. Mends. Lays bricks. Cares for bath-room	
10 ″	Good institution helper. Routine work	Middle Moron
11 ″	Fairly complicated work with only occasional oversight	
12 ″	Uses machinery. Can care for animals. No supervision for routine work. Cannot plan	High

Porteus (1922) continued the elaboration in his industrial and social rating scales, as did Buhl (1928) in his refined job analysis of idiot performances. Yepsen (1928) added a behavioral adjustment schedule, Kuenzel (1929) an industrial virtues score-card, and Oseretsky (Doll, 1946) a year-scale of motor proficiency. Furfey (1931) studied developmental age in terms of social interests, Wood and Lerrigo (1927) for health behavior, Gesell (1925) for infant growth, Anderson and Goodenough (1929) for family records, Rogers (1931) for personality, Brace (1927) for motor ability, and so on.

These and many similar investigations are relevant to our immediate task. They bear on the components and facets of maturation and adjustment which in their integration reveal

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*From GODDARD, HENRY H. 1914. *Feeble-Mindedness: its causes and consequences*. New York: Macmillan, (p. 581). Reproduced by permission of author and publisher.

social competence. But we cannot here be specifically concerned with the extensive scientific literature (Buros, 1949) in these and other fields such as the direct measurement of personality, emotional maturity, educational attainment, or occupational achievement. Two such unpublished endeavors, however, merit special attention.

Myra Kuenzel's "Scale of Industrial Virtues" was part of a larger program of studies in the field of job analysis and serves to contrast the manner of behavior with its level.

SCALE OF INDUSTRIAL VIRTUES*

A. QUANTITY OF WORK DONE

1. Does more than others in the same work.
2. Does less than half of the work he is given to do.
3. Does more than half but less than all of the work he is given to do.
4. Does all that he is told to do but no more.
5. Does more than he is given to do.
6. Is given no instructions since he does not do as told.

B. QUALITY OF WORK DONE

1. Work must be done over again.
2. Quality of work is accepted.
3. Quality of work is approved with a feeling of satisfaction.
4. Quality of work is accepted although not liked.
5. Does better than others in the same work.

C. IMPROVEMENT

1. Is not doing as good work as formerly (last week).
2. Is improving in his work.
3. Shows no improvement in his work.
4. Has reached top performance for job.

D. INDUSTRIOUSNESS

1. Works regardless of hours.
2. Works according to schedule hours.
3. Watches for quitting time.
4. Does not put in full time.

E. PRODUCTIVITY

1. Gets as much done as do others in the same work.
2. Puts things off.
3. Doesn't do anything.
4. Gets things done.
5. Gets more done than you expect him to do.

F. GOOD NATURE

1. Seems to enjoy this work.
2. Works in an unconcerned manner.
3. Seems to dislike this work.

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* From KUENZEL, MYRA W. A score-card of industrial virtues. Unpublished research form, The Vineland Laboratory. Reproduced by author's permission.

G. AMBITIOUSNESS

1. Loafs on the job.
2. Actions show no desire on his part to excel in this work.
3. Looks for work to do.

H. SUPERVISION

1. Requires less attention than do others in the same work.
2. Has to be watched every minute.
3. Requires no more supervision than is given others in the same work.
4. Initiates own work.

I. YOUR ATTITUDE TOWARD HIM

1. Enjoy his working for you.
2. Gets on your nerves.
3. Is part of your job to put up with him.

J. COOPERATION

1. Does best work while working alone.
2. Does best work while working with others.
3. Does as good work while alone as when with others.

K. FRIENDLINESS

1. Others in the same work do not ask to work with him.
2. Others in the same work object to working with him.
3. Others in the same work ask to work with him.

L. EFFICIENCY

1. Works too fast to do good work.
2. Works too slowly to be considered a good worker.
3. Does satisfactory work in an acceptable period of time.
4. Works more rapidly and effectively than is required.

M. USEFULNESS

1. Makes himself wanted.
2. Work would be better off without him.
3. Could be replaced without loss to work.

N. DESTRUCTFULNESS

1. Breaks things oftener than seems necessary.
2. Breaks no more than others in the same work.
3. Breaks nothing.

O. ECONOMY

1. Wastes materials.
2. Uses that which he is given.
3. Economizes materials.

P. RELIABILITY

1. Takes things which do not belong to him.
2. Takes nothing that does not belong to him.

Q. TRUTHFULNESS

1. Misrepresents his work.
2. Tells the truth about his work.

R. CAPABILITY

1. Has more ability that this job uses.
2. Has as much ability as this job requires.
3. Hasn't enough ability for this job.

S. DISABILITY

1. Works under a mental or physical disability which makes the work difficult.
2. Work is not affected by the disability if there is one.
3. Tires easily.
4. Was off duty recently because of illness.

The job analysis technique produces item performances within job families analogous to the categorical items of the Social Maturity Scale. But such analyses usually ignore mode of performance in favor of degree of performance. The Kuenzel scale permits estimation of the *manner* or quality of performance at any given level and is applicable to the entire range of social competence from idiocy to superior adult extensions. Such a scale is particularly useful in the supplementary estimation of deviation in social competence, regression at senescence, or in instances of mental or physical deterioration. (It is observed elsewhere that in senescence, deterioration, or impairment the Social Maturity Scale does not afford satisfactory measures of losses in *versatility* of performance as contrasted with *level.*)

Doll (1929) devised a score-card for evaluating changes in the behavior of hospitalized mental patients prior to, during, and following psychiatric care and treatment.

BEHAVIOR SCORE CARD
for
MENTALLY DISTURBED PATIENTS*

(Check the one item in each group which most nearly describes the patient)

Score Values	
	A.
2	1. Is careless as to appearance of person and dress.
1	2. Dresses with care and is neat of person.
4	3. Tears clothing, presents dishevelled appearance, unclean in person or habits.
3	4. Is specially preoccupied with dress, presents bizarre appearance, shows vanity approaching exhibitionism.
	B.
4	1. Becomes angry on slight provocation; swears, destroys things, threatens people.
3	2. Conducts himself with extreme dignity of bearing, shows exaggerated politeness.
2	3. Sulks, resists attempts to interest him, shows apathy toward surroundings and events
1	4. Takes an alert interest in what is going on, goes about his own business.

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* From DOLL, EDGAR A. A score-card for measuring the improvement of mental patients. Unpublished research form, The Vineland Laboratory.

C.

3 1. Fusses about trifles, "butts in," annoys people with desire for attention.

2 2. Has queer mannerisms, assumes odd postures, runs a little show of his own.

1 3. Gets along well with others, not easily upset. Is calm and self-possessed.

4 4. Laughs a good deal, talks volubly, walks about and busies himself with many activities, much ado about nothing.

D.

3 1. Believes people treat him unfairly, makes unreasonable demands, fears for safety, thinks he is not well.

2 2. Talks incoherently, wanders from the point in conversation, introduces irrelevant ideas.

1 3. Sustains a rational conversation, can be relied upon to carry out instructions, appreciates surroundings.

4 4. Acts as if he were someone else, actions are not consistent with significant surroundings.

E.

1 1. Takes an interest in surroundings, works cheerfully, reads or engages in games or hobbies.

2 2. Keeps to himself, sits idle most of the time, does not enjoy recreational pursuits.

4 3. Collects and hoards meaningless trifles, values articles out of all proportion to their worth.

1 4. Looks for work to do or seeks opportunities to be of help, does not abuse freedom, discreet and can be trusted.

3 5. Engages in petty deceptions, appropriates the property of others, misrepresents facts and events.

Difficulties encountered. Ask any person who has but little hesitation in judging another's behavior what is the basis for that judgment or what standards he employs, and his opinion is immediately rendered uncertain. Ask any parent to enumerate the evidence by which he feels assured of the normal development of his children, and that parent becomes vaguely inarticulate. Search the textbooks of genetic psychology or social psychology and note how limited is the information that can be usefully employed in preparing normative schedules of development. Observe children yourself, compare notes with others, reflect retrospectively on your own development, and note how elusive are both the content and the timing of such maturation. Such observations require both direction and quantification.

The attempt to reduce general observations to specific definition does not often receive the immediate approval that one might expect. The first reaction of others is one of skepticism.. As Whitehead has observed, new ideas have a certain aspect of foolishness when they are first produced. But we agree with William A. McCall that "whatever exists at all exists in some amount," and " anything that exists in amount can be measured." Or as Binet and Simon said long ago, "quantitative differences are of no value unless they are measured, even if measured but crudely."

Can we, then, through standardized measurement achieve a more exact appraisal of social adequacy than has previously been possible through observational estimation? It is a truism in science that numerical measurement magnifies the difficulties that were previously overlooked by subjective observation. Refinement of analysis exaggerates the variables it discloses. When one asks "At what age does the normal child do this or that?", or "What does the normal child do at this or that age?", one gets the reply "It all depends." This phrase implies that the nature of development varies from person to person by such wide differences that no individual standard can be established. It also implies that the rate of development is so heavily influenced by environmental variables that no genetically determined course of maturation can be plotted independently of these variables.

These are real difficulties. To overcome them requires persistent search for those features of development which are more or less universal and which *do* follow an orderly progression. Behavior items must therefore be sought which are relatively independent of specifically variable influences on maturation. Items must also be sought in respect to which individual differences in rate of development are at a minimum. "It *all* depends," must be reduced to "It depends *somewhat.*"

Consequently, out of a very large number of performances that might easily be arrayed as indicative of development at random ages, or for particular persons, or for specific nationalities, or in isolated environments, those must be chosen which reflect the innate biological potential that flowers more or less constantly from person to person, age to age, and place to place as milestones of growth of the organism as a whole.

There is ample evidence that regardless of environment the human individual passes through a series of developmental stages common to the species (Fortes, 1938; Mead, 1946). These gross aspects of development have long been recognized; our present task is only to analyze them for finer degrees. That this can be done with statistical precision we endeavor to show in subsequent chapters.

Example of analytic method. Consider a single example. Sooner or later every normal person feeds himself without assistance. When does the average individual do this? What are the successive stages and ages involved in this accomplishment? Grant immediately that "it depends" more or less on many circumstances, such as the kind of food, its availability, how prepared or served, the utensils used for eating, the etiquette of the occasion, the instruction or urging, or the lack of these.

Immediately we must define what we mean by feeding one's self. Assume that one need not prepare the food as a cook, nor obtain it as a producer. Pass over the conditions which obtain in a primitive environment where one may eat with one's knuckles or from a gourd, to the ordinary U. S. environment where one sits down to a table in a company, with (perhaps) appropriate linen and utensils, using knife, fork, and spoon, as well as cup, glass, and dish, and eats a variety of prepared foods. We may consider this performance of caring for self unassisted at table as meaning that the individual eats independently as any mature person (in this respect) would in similar circumstances. The circumstances, to be sure, may require particular definition; using chopsticks may be more or less difficult than using knuckles or knife and fork, and politely dissecting a wing of fowl may not be so easy as gulping a bowl of gruel.

Some definition then is necessary which shall be representative of the mode of behavior according to age and custom. At the moment we are not comparative cultural anthropologists nor students of etiquette in a long-established formal civilization. Our immediate interest is confined to a representative (defined) environment of general scope. In this environment the child progresses from nursing at the breast to feeding from a bottle, to drinking from a cup assisted, eating from a spoon assisted, doing these unassisted, using a fork, using a knife, helping himself, and so on. Such successive stages in the process of self-help eating may be formulated without too much regard for their minor variability. When subjected to empirical examination the inconsequential details and the temporal appearance of critical sequences become more clearly apparent.

Considering for the moment the major result, and not forgetting that circumstances alter cases, we hardly expect the infant at birth to care for himself without aid at the table, even if by some miracle he could sit in a highchair to do so. Neither do we expect him to do this at one year of age, or at two, three, four, or five, although to be sure at these successive ages we shall see the child making noticeable headway toward this goal, as we may also note marked differences among children in reaching it. Or if we view this performance from the other extremity, we should expect to find some mental or physical handicap among those who do *not* care for themselves independently at the table after twenty years of age, or fifteen, or perhaps twelve, or possibly ten.

From such considerations we "discover" that this feat (complete care of self at table) is accomplished most commonly between eight and ten years of age. Our data for this item (p. 110) reveal an obtained per cent of "passes" at each successive life age, from which may be calculated an *average* age at which the performance is accomplished. The Thomson means of our maturation data fall at 8.8 years for girls, and 9.3 years for boys.

We learn further that the standard deviation for these means is 1.8 years for girls, and 1.4 years for boys. We may combine the data and find that without regard for sex this performance is average at 9.0 years, with a standard deviation of 1.4 years, and with the extreme limits falling between 5 and 11 years. For what it might be worth we may calculate the standard error of this total mean, or of the sex means, or the statistical significance of the sex difference, and so on, with due regard for the limitations of the samples and the adequacy of the original data. The variables which influence such results can be isolated and to a degree empirically or statistically controlled for further analysis. For example, the variation in rate of development, or age at passing, for a given person may no doubt be influenced more or less by environmental circumstances. In broadly similar cultures such variation is much more probably due to individual differences in maturation or to special handicaps respecting the various abilities involved in accomplishing this act. Such variation will also be related to "errors" of data (e.g., examining, scoring, sampling).

We could pursue this illustration further for other items of the "self-help eating" category, or other categories of behavior. In fact, such exposition will be the principal task of this volume. Our purpose for the moment is to illustrate the hypothesis, and particularly to show that whatever variability may be at issue because of specific variables, whether correlative or selective, may itself be expressed within definite statistical limits through experimental inquiry *as soon as a standard concept has been established.*

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PART II

CONSTRUCTION OF SOCIAL MATURITY SCALE

Chapter 4. Design of the Scale

Chapter 5. Item Criteria

Chapter 6. Item Specification

4

Design of the Scale

If one should look at things as
they grow from the beginning it
would be the best method of study.— Aristotle

The preceding chapters comprise a general statement of the problem and the concepts which underlie this method of measuring social competence. The need for such a method is clear and the manifold uses readily apparent. Following the leads inherent in common observation, and coordinating the scattered scientific material seems simple enough. So also the distant mountain appears easy to scale until one explores its more imminent ascents. A facetious rime well expresses the dilemma:

The centipede was happy quite
Until the toad, in fun,
Said, pray, which leg moves after which?
This raised her doubts to such a pitch
She fell distracted in the ditch,
Not knowing how to run. — *Marion Quinlan Davis*

General plan of full scale. The procedure finally adopted was somewhat as follows. We first canvassed the nature and course of genetic development as revealed by ordinary observation, the scientific literature and general knowledge. With few exceptions, the literature proved fertile in general trend but strikingly barren of specific material that satisfied our requirements. The studies of child development (especially for the decade 1920—1930) proved helpful for the period of early infancy, but offered little after the close of the pre-school period. The genetic milestones of the road to maturity were few in number, indeterminately spaced, and vaguely inscribed; the traveler was guided by a variable compass and shifting landmarks.

Supplementing these broad resources we drew upon our own observations of normal children during a quarter century of child-study supplemented by intimate acquaintance with the feeble-minded. The latter in many ways afford slow-motion or "still" pictures of human maturation which makes possible more detailed analysis of developmental stages than is practicable among normal children (who pass these stages too rapidly for minute appraisal). And since the initial purpose of the proposed scale was to measure subnormal degrees of social maturation, these observations on the feeble-minded were specifically relevant. Moreover, among the various types and degrees of deficiency we could note the presumptive influence of age and experience, general intelligence, special abilities and disabilities, effect of instruction, and above all the discriminative value of such items among those permanently retarded in social maturation.

From this background we sought to assemble an inventory of genetically apparent performances which would serve to distinguish one level of attainment from another. What are the specific social accomplishments of normal childern at say five, ten, fifteen, or twenty years which characterize "growing up"? Which of these afford the sharpest discrimination at successive ages? Which of them are significant of social adequacy? How can these periods be reduced to smaller intervals and yet retain discriminative distinctiveness? By what performances are normal persons at any age superior to morons, morons to imbeciles, and imbeciles to idiots? Can these differences be expressed in age-scale units similar to mental-age scores?

Such inventories were constructed by listing apparently significant segments of maturation that seemed to distinguish one normative age-level from another and each mental deficiency level from its neighbors. As major criteria for itemizing such performances it seemed desirable that all items should have relatively universal appearance, rapid emergence, prolonged retention, and biogenetic socially significant value.

It soon became evident that such detailed performances fell somewhat naturally into major categories of expression which included progressive degrees of essentially similar activity. It was equally evident that these progressions might be segmented as distinctive stages of the categorical behavior in question. We subsequently combined these two procedures by pooling from all categories those items which most obviously discriminated successive age levels.

In this we followed few preconceived notions either as to the abilities present at a given age or the categorical relations of such items. Our initial task was to enumerate as many performances as possible that seemed characteristic of successive life ages, using information regarding both the age periods and the categorical aspects of development. Of prime importance was the requirement that each item should bear pertinent relation to social competence.

Other considerations required that the items of the Scale be relatively independent of the specific influence of sex (so that we might have a single scale for both sexes), personality, conventions, social status, special environmental opportunity, and the like, as such. Further, we decided to retain only those items which represented the ultimate capitalization of personal abilities and experiences for social competence rather than these for their own sake. We chose deliberately to select items which reflected the *tout ensemble* of social expression. Consequently we discarded items which seemed to be specific measures of intelligence, skill, attitudes, habits, specific achievement, and the like, preferring instead the more generalized and more universal utilitarian end-results produced by their correlated application. As will appear later, we were not altogether successful in identifying social maturity with social competence.

In adopting this point of view we assumed that in the normal course of growth and development the individual dominates, capitalizes, or utilizes his environmental opportunities according to the stage of genetic evolution in which he may be at the time. We were not immediately concerned with the extent to which this learning was the product of formal instruction, imitation, original adaptation, or the bio-social urge to self-expression. Fortunately for this purpose, the democratic atmosphere of the United States environment and the general freedom of social opportunity afford almost unlimited scope for social maturation. The generally high level of material and scholastic culture, the comparative freedom from political and economic restraints, the comparative wealth and universality of social expression, encourage the fullest personal exploitation of the environment possible according to one's native ability and stage of development. These opportunities are incidental, accidental, and consequential; their effects are direct and indirect, causal and casual.

Our thesis bears repeating, namely, that the child is relatively helpless at birth, gradually "takes over" increasing responsibility for his own personal needs, later assumes responsibility for the welfare of others, and in the highest forms of self-expression contributes to the general welfare of society. In the involutional stage of post-maturity (senescence), and in disordered mental states or physical conditions, he may revert to more or less dependent status from loss or impairment of vigor.

Requirements. What principles govern the selection of items for such a scale?

1. A choice must be made regarding the environmental limits within which the scale is to be considered standard. This scale is designed for general use in (a) "ordinary" urban and rural (U.S.) situations, (b) within the "usual" limits of social-economic status as a whole, (c) over the entire range of literacy, (d) for the complex of nationality derivations found in this country in large numbers. Obviously, the validations for such generalities must depend upon further inquiry, without which we cannot know how adequately the Vineland sample represents the total U.S. population and its cultural differences. We must therefore leave to later applications of the Scale the determination of major environmental differences and their effect on the standardization of the items. This would require composite sampling of the population according to proportional representation and other details. In other words, the "addends" require more explicit exposition both as to their specification and their effects.

2. We must decide whether to have a separate scale for each sex, or a single scale for both sexes. For practical reasons a single scale offers decided advantages. This merely requires that items which show presumptive or demonstrated sex differences be excluded and only those items retained which are equally applicable to both sexes. Thus, in Item 75 (Cares for self at table) there is a mean sex difference of .45 years in favor of the girls, but the statistical reliability (critical ratio) of this difference is only .60 (and therefore not statistically significant). Moreover, the amount of difference is relatively small. This criterion is made more explicit in the discussion of item standardization (Chapter 6).

In place of a separate scale for each sex or a single scale for both, a combination scale might be constructed with certain items alternative for the sexes. This has been avoided except in a few instances where the same item is alternatively defined. For the rest, the sex differences which remain are of limited significance, and their effects are further compensated in the total scores. The total elimination of sex differences must await a more extensive revision or standardization. As we shall note later, such total elimination may be undesirable as well as impracticable. For there may well be genuine differences which should be revealed rather than obscured, or clarified rather than suppressed.

3. Each item should show rapid rise and consistency for its maturation period. In other words, the extreme limits within which success and failure are comprised in successive life-age groups should be narrow; that is, the standard deviation of the distribution should be small. As a matter of fact, for the majority of our items (sexes combined) the total maturational spread is less than six years, the standard deviation is less than 1.10 years, and the coefficient of variability is less than 30.

4. It is desirable that item "success" should be retained rather than lost in successive stages of maturation. Continued maturation may involve the loss of some types of behavior while acquiring others, as the organism evolves. For example, the play activities of early childhood are superceded by the creative realities of adolescence, for as related Biblically, "When I became a man I put away childish things." It is desirable that the individual be scored throughout the entire range of development; hence if *loss* of function is taken as an evidence of maturity, this introduces a difficulty due to the fact that the actual scoring of an item then requires knowledge as to whether the absence of habitual performance is due to immaturity or to post-maturity. This principle need not apply, however, to those items which might be employed when loss of function represents a return to an earlier stage of dependence because of mental or physical impairment. The violation of this principle for certain items is discussed in relation to the item specifications (Chapter 6).

5. It is essential that such a scale be employed in its entirety either in fact or by implication since the maturity level of the individual is indicated by his total score on the scale as a whole. It is therefore necessary not only to calibrate the scale item by item, but also to standardize the total scores.

Each item of this scale reveals some lower age at which there is total absence of performance on the part of the most gifted or precocious individuals, and most items some upper age at which the performance is present in all individuals except those whose development has been reduced by extreme mental, social, or environmental handicap. At the upper extremity of the Scale some items are ultimately passed by only a majority, and others by only a minority. The final items are passed only rarely or not at all by the most competent S's (subjects) in our sample. In short, each item reveals a maturation that may be plotted statistically as progressive percentages of passing for successive life ages. The central tendencies of these curves yield a numerically precise calibration of scale units and the standard deviations of these means afford criteria for item selection in relation to specific influences.

6. The items finally retained must be susceptible of explicit definition, and adequate information must presumptively be obtainable for satisfying these definitions with a minimum of equivocation. Many otherwise desirable items were discarded because of the difficulty of clear specification, or that of obtaining suitable evidence. This was conspicuously apparent on items of school attainment where the useful application of attained literacy proved difficult to evaluate. It is hardly to be expected that all items will equally satisfy this requirement of clearcut definition and evidence. The present weaknesses of particular items can be corrected; such specific shortcomings do not seriously affect the Scale as a whole.

Range of application. What are the limits of social maturity that can be measured by such a device? We have discussed the helplessness of the new-born infant as equivalent to the approximate zero of the Scale. Indeed, the zero point of social maturity is somewhat below that of the new-born infant, dating as far back as at least early fetal movement.

We have seen a mental patient in a state of catalepsy whose social behavior was less than that of the new-born infant. This patient displayed no movement whatever other than occasional faint twitchings of the eyelids. Not even the simplest self-sustaining functions were operative aside from such involuntary vital processes as respiration, circulation, digestion and elimination. This patient was tube-fed, since even swallowing or the most elementary feeding mechanisms were inhibited. Even elimination had to be induced by cathartic and enema. Such a person is hardly even vegetative since his performances are at such low ebb that even vital functions are not self-sustained and the capacity for independent survival is less than that of a rooted plant. Yet we may not say that the *mental* life of such a person is absolutely nil even though there be at the time no evidence of such activity. It is not unusual for such a patient on recovery to have clear recollection of the experiences going on about him at the time although to all appearances in a complete state of coma.

And lest this simple illustration seem unique we may note whole categories of extreme deficiency, either developmental or involutional, associated with mental or physical disabilities such as vegetative idiocy, severe cerebral palsy, terminal dementia, the final stages of Parkinsonism, and so on.

At the other pole, the height of social maturity may be said to be reached by those individuals who control the destinies of others in large measure. Here we encounter the difficulty of appraising moral social values. Was Aristotle socially more "mature" than Alexander, or Nietzche more "competent" than Bismark? Shall we esteem ethical, spiritual, and intellectual expression above political, economic, and military leadership? We shall subsequently propound a philosophy of social values on which the adult items of this scale are postulated. We shall have no little difficulty defending the thesis that the sword is mightier than the pen, that Caesar was socially more competent than Paul, or Stalin than Gandhi. For the immediate superiority of the extrovert does not outlive the ultimate influence of the introvert. We agree with Poincairé that "the conquests of industry which have enriched so many practical men would never have seen the light, if these practical men alone had existed and if they had not been preceded by unselfish devotees who died poor, who never thought of utility." On the other hand the "practical" ones do harvest such fruits.

For completeness we have endeavored to include both points of view. The most mature individual would therefore be he who is both teacher and statesman, or both conqueror and ruler, a Plato equal to the practical exploitation of his own philosophy, or a Napoleon politically able to unite Europe. This involves the difficult question of what constitutes social progress, since it has been so frequently evident that efforts toward world domination have resulted only in social desolation.

The interview method. Such a scale could be formulated as a rating scale, in which case the subject would be described in respect to his performances on the basis of the personal opinion of some observer. These opinions would be relatively subjective values inferred from observations and would vary according to the standards employed by the informant in expressing his opinions. The method would be only moderately improved by adopting more recent rating scale techniques.

In place of such a rating scale, we might employ representative standard situations for "testing" a subject's capabilities. This alternative has the merit of relative objectivity but is obviously not suited to our purposes, first because of the essential difficulty of providing practical test situations as laboratory equivalents of the behavior in question, and also because such observations would reveal only what the subject *can* do at the time of examination rather than what he *does* do routinely.

Since it is our purpose in measuring social behavior to describe the expression of abilities in terms of their capitalization for socially significant purposes, we are concerned not so much with innate ability as with overt performance. Consequently we desire to appraise a person's *habitual* or customary behavior as an established mode of conduct rather than as a potential for acquiring such conduct. Hence we require of the method that it should reveal what the subject typically *does* in daily life (within the limits of repeated experience) rather than what he *could do if required.*

In place of test observations we must therefore rely upon report. But this returns us to the pitfalls of the rating scale method. To avoid this we must seek relatively objective statements as factual descriptions, which are comparatively free from mere opinion or subjective (inferred value) standards. We require more than a statement of yes or no, or of more or less. In short, we require specific information regarding *overt behavior which can be evaluated by the examiner on the basis of standard definitive formulation.*

Calibration principle. Assuming a satisfactory system of examination, and a fair degree of adequacy for the data so obtained, the next problem is that of "normalizing" the material in the form of a standardized scale. The basic units of measurement within the data are the LA (life age) item norms. But the ultimate performance unit to be standardized is the normative sum of item successes. The items must therefore be arranged in some systematic fashion, and the total scores reduced to standard units. These are to be expressed as age-norms since this is the basic equivalent standard for expressing the performance values.

Such numerical derivatives are inevitably conventional rather than "natural" units since the performance scores afford no (other) dimensional measure. These derived units are influenced by the particular principle employed in the treatment of data suggested by logical, mathematical and practical considerations (cf. p. 373 and p. 380).

While various modes of treatment have acquired a general acceptance (or at least vogue), no "best way" has yet become a final criterion. In the present state of experimentation different procedures afford relative advantages and limitations according to the materials and problems at issue. In designing the structural form of a scale such as this, one must therefore exercise those predilections which seem most advisable in view of all circumstances.

In constructing the present scale we sought a compromise between the intricacies of recent statistical developments and the looseness of earlier analysis. Simplicity and clarity as well as practicability are virtues not to be lightly bartered for mathematical complexities which have not yet proved their empirical worth. As Kurt Lewin once observed, "Theory is great, but we musn't let it get in our way." For the involved theory and extensive labor attending these methods yield products whose ultimate merits are still dubious. And lest such a statement seem dogmatic or apologetic we should perhaps add that this conclusion was reached in this work only after a thoughtful appraisal of the statistical resources at present variously advocated. A resumé of these arguments is not here desirable. Nor is it feasible to review the trial treatments of data which helped to decide the above standpoint.

As a first requirement it was deemed desirable to arrange the Scale items in a statistically definite hierarchy. This provided a schedule of performances in orderly progression of mean life-age values for the entire maturation period covered by each item for all subjects examined.

The specific data are reported in Chapter 6. Other progressions may depart from this one (a) by statistically determinable (but probably minor) amounts if the *size* of the sample is increased, (b) by generally predictable amounts if the *selectivity* of the sample is modified in known directions, (c) by relatively unpredictable (but perhaps appreciable) amounts if the standards of administration or scoring are notably altered, and (d) by serious amounts if the items themselves are modified in number, scope or form. Since all of these variables are subject to at least some variation in other samples, it is to be expected that other standardizations may yield corresponding revisions of item arrangement and age-scores (as in the Maxfield-Fjeld adaptation for young blind subjects, p. 531).

These progressions will further be modified by the particular procedures employed for determining them for any given body of data. Of the different methods and various criteria advocated for treating this type of data the Thomson method was adopted as the most objective and otherwise satisfactory. This method affords a statistically accurate mean difficulty for each item by taking account of all data from total absence to total presence of passes for each item throughout the entire maturation period. It also yields a standard measure of variability which in turn permits statistical appraisal of the reliability of differences of means.

The precise order of progression of items of the final Scale is based on mean life-age maturation. To accomplish this we employed a selected sample rather than a random sample. The consistency of the selection at successive stages is indicated by the central tendencies for such influences as paternal occupation and bi-parental schooling as well as by the subjects' own occupation and schooling (Chapter 9). The influence of the number of cases (S's) on the item norms and age norms can be statistically calculated from the data. The results are further stabilized by having been gathered and scored by one examiner as well as initially treated under that person's immediate supervision. Hence the standardization may be taken as unusually dependable within the limits of the data.

Point-scale principle. The arrangement of items in sequential order of difficulty is not essential to point-scale standardization, but does facilitate and clarify such an outcome. Moreover, since the Thomson method affords not only a statistically conventional progression, but also yields precise year-locations of items, the Scale is a "neater" instrument and has more meaning. This simplifies the conversion of the point-scale arrangement to a year-scale.

For present purposes a point-scale may be defined as a series of items graded according to some criterion in such a manner that a given sum of points may be expressed as criterion-unit values. In the present scale the normative unit of grading is life age and the corresponding values are the mean point scores corresponding to successive mean ages. As a point-scale, total point-scores may be converted to age-values (termed SA or "social age") by interpolation or from a standard table (Chapter 7).

Year-scale principle. A year-scale as distinguished from a point-scale is one in which the items are arranged in year-groups as well as (or rather than) in simple point progression. Age-scores may be calculated directly from a year-scale without resort to conversion tables.

The Binet-Simon Scale is a well-known example of year-scale construction. (In the Yerkes-Bridges-Hardwick modification and in the Herring Revision it is arranged as a point-scale.) That scale was first presented in 1905 as a roughly progressive series of test items. In the 1908 version the year-scale principle was adopted and has been retained in most of the subsequent reformulations. The items (tests) of such a scale are typically arranged in a rough approximation to progressive order of difficulty on the principle of being passed by a majority of the subjects of the age-level at which each item "standardizes." This "majority" has been uncertainly defined and dubiously determined by most workers. (The more precise procedures proposed by Otis, Kuhlmann, Thurstone, Thorndike and others have not been widely employed.) The resulting inadequacies disturb the internal "neatness" of such scales; while not gravely disturbing, they induce a wider "scatter" in individual results. Other year-scales have employed other procedures (as in the year-scale arrangement of the Pintner-Paterson Performance Scale). And of course many scales are designed on other principles. Indeed, many students are vigorously opposed to the year-scale (commonly called mental-age) principle.

The method herein employed, which gives precise mean-age values to each item for its total maturation range, and which derives age-scores from point-scores, has many practical advantages over the empirical method of the Binet-type scale.

The Social Scale has been arranged as a year-scale by segmenting the successive items in groups according to sequential interval point-scores as year-equivalents (Chapter 9). The numerical progression of items represents the order of difficulty in terms of mean-age calibration. This numerical progression considered cumulatively is reduced to total point scores, and these are further reduced to age-level groups by progressive interpolation (Chapter 9). The SA item values are then taken as proportional to the number of items per year-group.

It is a convenience, but not a necessity, to have the same number of items for each year group. This would give all items equal values (where the year intervals are equal) since each would have the same fractional year value, and these values could be easily memorized. And the number of items per year could be determined so as to simplify fractional or decimal additions as convenient multiples of years or months.

In this Scale, instead of an equal number of tests per year-interval the number decreases progressively as age level increases. At some year-intervals the point scores standardize unevenly or by such small increments that it is advisable to combine intervals and assume a smooth distribution between intervals. The individual items are therefore of unequal age-score value. Hence point-score values are retained by summing the total number of items passed. The age-score may then be obtained by interpolation from the blank or from the conversion table (since the point-score age-scores are the same as the year-score age-scores throughout the Scale).

The advantages of the year-scale principle are therefore of the order of practical convenience. For example:

1. The year-scale arrangement of items facilitates identifying and memorizing the items in terms of their central maturation value.

2. It simplifies administration of the Scale by suggesting the most probable area of examining in relation to life age, or score level, and within categories.

3. It makes the Scale more readily intelligible to the layman or the amateur examiner, and thus encourages more meaningful attitudes toward its acceptance, mastery and use.

4. It permits direct calculation of age-scores from the blank without need for consulting conversion tables.

5. It encourages use of the Scale as a history schedule of child development.

6. It calls attention to the Scale's internal constitution, such as numbers of items per age-level, categorical loading at different intervals, change in item content with age, which are less readily apparent in the point-scale alone.

The final Scale. From such considerations the initial descriptive outline of motor improvement with which this work began grew into a developmental schedule of manifold performances, then a calibrated sequence of social maturation, then to a standardized point-scale and finally a combination of these into a year-scale. This is accomplished in Chapter 9 (see p. 373 and p. 380). The outcome is anticipated here in the record blank for the Scale which follows.

VINELAND SOCIAL MATURITY SCALE*

Name .... Sex .... Grade ...... Date ....
Residence .... Descent .... Born ....
M.A. or M.G.U. .... I.Q. or P.A. ....Test Used ....When ....Age ....
Occupation ....Class...... Yrs. Exp. ...... Schooling ......
Father's Occupation ....Class...... Yrs. Exp. ...... Schooling ......
Mother's Occupation ....Class...... Yrs. Exp. ...... Schooling ......
Informant ....Relationship ....Recorder ....
Informant's Est. ....Basal Score ....
Remarks:
Additional Pts. ....
Total Score ....
Age Equivalent ....
Social Quotient ....

Categories**	Item	Age Levels
		O — I
C	1.	"Crows"; laughs
S H G	2.	Balances head
S H G	3.	Grasps objects within reach
S	4.	Reaches for familiar persons
S H G	5.	Rolls over
S H G	6.	Reaches for nearby objects
O	7.	Occupies self unattended
S H G	8.	Sits unsupported
S H G	9.	Pulls self upright
C	10.	"Talks"; imitates sounds
S H E	11.	Drinks from cup or glass assisted
L	12.	Moves about on floor
S H G	13.	Grasps with thumb and finger
S	14.	Demands personal attention
S H G	15.	Stands alone
S H E	16.	Does not drool
C	17.	Follows simple instructions
		I — II
L	18.	Walks about room unattended
O	19.	Marks with pencil or crayon
S H E	20.	Masticates food
S H D	21.	Pulls off socks
O	22.	Transfers objects
S H G	23.	Overcomes simple obstacles
O	24.	Fetches or carries familiar objects
S H E	25.	Drinks from cup or glass unassisted
S H G	26.	Gives up baby carriage
S	27.	Plays with other children
S H E	28.	Eats with spoon
L	29.	Goes about house or yard
S H E	30.	Discriminates edible substances

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**Key to categorical arrangement of items:

S H G — Self-help general
S H D — Self-help dressing
S H E — Self-help eating
C — Communication
S D — Self-direction
S — Socialization
L — Locomotion
O — Occupation

C	31.	Uses names of familiar objects
L	32.	Walks upstairs unassisted
S H E	33.	Unwraps candy
C	34.	Talks in short sentences

II — III

S H G	35.	Asks to go to toilet
O	36.	Initiates own play activities
S H D	37.	Removes coat or dress
S H E	38.	Eats with fork
S H E	39.	Gets drink unassisted
S H D	40.	Dries own hands
S H G	41.	Avoids simple hazards
S H D	42.	Puts on coat or dress unassisted
O	43.	Cuts with scissors
C	44.	Relates experiences

III — IV

L	45.	Walks downstairs one step per tread
S	46.	Plays cooperatively at kindergarten level
S H D	47.	Buttons coat or dress
O	48.	Helps at little household tasks
S	49.	"Performs" for others
S H D	50.	Washes hands unaided

IV — V

S H G	51.	Cares for self at toilet
S H D	52.	Washes face unassisted
L	53.	Goes about neighborhood unattended
S H D	54.	Dresses self except tying
O	55.	Uses pencil or crayon for drawing
S	56.	Plays competitive exercise games

V — VI

O	57.	Uses skates, sled, wagon
C	58.	Prints simple words
S	59.	Plays simple table games
S D	60.	Is trusted with money
L	61.	Goes to school unattended

VI — VII

S H E	62.	Uses table knife for spreading
C	63.	Uses pencil for writing
S H D	64.	Bathes self assisted
S H D	65.	Goes to bed unassisted

VII — VIII

S H G	66.	Tells time to quarter hour
S H E	67.	Uses table knife for cutting
S	68.	Disavows literal Santa Claus
S	69.	Participates in pre-adolescent play
S H D	70.	Combs or brushes hair

VIII — IX

O	71.	Uses tools or utensils
O	72.	Does routine household tasks
C	73.	Reads on own initiative
S H D	74.	Bathes self unaided

IX — X

S H E	75.	Cares for self at table
S D	76.	Makes minor purchases
L	77.	Goes about home town freely

X — XI

C	78.	Writes occasional short letters
C	79.	Makes telephone calls
O	80.	Does small remunerative work
C	81.	Answers ads; purchases by mail

XI — XII

O	82.	Does simple creative work
S D	83.	Is left to care for self or others
C	84.	Enjoys books, newspapers, magazines

XII — XV

S	85.	Plays difficult games
S H D	86.	Exercises complete care of dress
S D	87.	Buys own clothing accessories
S	88.	Engages in adolescent group activities
O	89.	Performs responsible routine chores

XV — XVIII

C	90.	Communicates by letter
C	91.	Follows current events
L	92.	Goes to nearby places alone
S D	93.	Goes out unsupervised daytime
S D	94.	Has own spending money
S D	95.	Buys all own clothing

XVIII — XX

L	96.	Goes to distant points alone
S D	97.	Looks after own health
O	98.	Has a job or continues schooling
S D	99.	Goes out nights unrestricted
S D	100.	Controls own major expenditures
S D	101.	Assumes personal responsibility

XX — XXV

S D	102.	Uses money providently
S	103.	Assumes responsibilities beyond own needs
S	104.	Contributes to social welfare
S D	105.	Provides for future

XXV+

O	106.	Performs skillled work
O	107.	Engages in beneficial recreation
O	108.	Systematizes own work
S	109.	Inspires confidence
S	110.	Promotes civic progress
O	111.	Supervises occupational pursuits
S D	112.	Purchases for others
O	113.	Directs or manages affairs of others
O	114.	Performs expert or professional work
S	115.	Shares community responsibility
O	116.	Creates own opportunities
S	117.	Advances general welfare

It is evident that the Scale is more heavily "loaded" at the early stages and "thins out" progressively toward the higher levels. There are several reasons for this outcome. First, the young infant has a narrow spread of years over which the examination may be considered, and consequently the number of items must be increased in relation to the age interval in order to obtain reliability and representativeness for the measure. Toward the adult level the situation changes as year differences become less meaningful due to the "compression effect" of the ultimate ceiling of maturation. Here we reach the upper limit of measurement of individual differences in terms of area as well as altitude. Moreover, few of the adult items reach complete expression for the average person, and some are specifically designed to yield only rare success. Consequently the successes for the adult items by their very nature do not attain to a very high percentage of incidence. In other words, growth over its total span tends to be logarithmic rather than rectilinear and the problem of equal units is not readily resolved. We must assume that the technically interested reader is reasonably familiar with these issues and the many publications bearing on them.

It is of course possible to expand the number of items at each age level, and it is important that this be done ultimately for the refinement of measures at all ages, and especially for the adolescent period. This task, however, is not so easy as at first appears if one adheres to the criteria specified above and selects items rather rigorously as measures of fundamental rather than superficial differences. Nevertheless, this task is by no means impossible and is, indeed, suggested as one important further development to anticipate.

We have in fact elaborated certain items as a Cottage Activities Chart (p. 548) for estimating the more minute degrees of progress in training for institutionalized feeble-minded wards. For this purpose Item 35 (Asks to go to toilet) was expanded into eighteen details. Items 21 and 37 (undressing) were increased to nineteen, and so on.

Finally, the item-categories are not co-extensive, or evenly spread, for all life-age ranges. This is most obviously due to changes in the direction of social competence as maturation proceeds, so that some categories "peter out" as others emerge (cf. p. 577). The problem here is to portray social maturation as it flowers rather than to fit its measurement into a preconceived logic of psychology.

5

Item Criteria

> *Youth lives in the future. It matters not so much what the young is as what he promises to become. So he has ambitions and the eagerness to get at the business of realizing them. Middle age lives in the present. Ambition is realized or it is not, but it ceases to become an emotional drive. Middle age views approaching old age and is content to hang on to what it has and fearful of losing that. Hope has become foreboding. Old age lives in the past. When the reminiscences begin, one can say with certainty, "This man is old."*
>
> —The Kalends

General considerations. To repeat, in designing this scale two approaches were employed, (a) a broad detailed inventory of performances which seemed distinctive for successive age periods, and (b) a generalized categorical evaluation of behavior throughout the life span. These reciprocal advances led to a critical selection of items as detailed phases of categorical behavioral progression. We now proceed to a more particular consideration of these items and categories with reference to the specific criteria underlying their definitive formulation.

First, it may be well to recapitulate and elaborate some of the premises involved in the conception of these items.

1. Each item is presumed to reflect some relatively universal performance which characterizes a definite stage of social maturation.

2. By social maturation is here meant the developmental evolution of behavior as revealed by the integrated expression of experience and learning for successive stages of adequacy in personal independence, interpersonal cooperation, and group responsibilities.

3. This progressive adequacy is viewed as a continuing process of biological survival and social continuity. (We are not concerned here with other telegenic philosophies regarding life purpose or value except, perhaps, as these may adventitiously influence individual aspiration toward achievement beyond mere survival.)

4. In this continuity of human survival we see the organism at first dependent (cared for), then independent (caring for self), then protective (caring for others) and finally again dependent (senescent).

5. This process of evolution and involution occurs within, and is modified by, both physical and social surroundings which affect the form and extent of expression of genetic potential at successive stages of maturation. Presumably the relative influence of nature and nurture can be factored, although not herein attempted—our immediate concern being with social outcome and secondarily with causes.

6. Representative forms of such behavior are observed as self-help, locomotion, occupation, communication, self-direction, and socialization. These categorical designations of behavior are not mutually exclusive but represent the variable aggregates of total maturation.

This classification is indicated by the special content of the item in question, although each item reflects a central factor of self-sufficiency in terms of age expectancy. There is consequently no need to insist upon the uniqueness of the classifications. What is more important is the degree of attainment within each. As we shall see, some of the items might have been nearly as well placed in other groups. Nor is there any implication that these are the only groupings or the only items which might have been considered. Rather they are categories and items which after careful consideration seemed reasonably representative of developmental progression as candid photographs of social competence throughout its maturational course.

7. While we may assume that all aspects of maturation are relevant to social adequacy, it seems evident that some forms are more relevant than others. Hence "maturity" and "competence" are not identical terms and we are immediately concerned only with their relative identification.

Thus Item 68 (Disavows literal Santa Claus), which deals with the repudiation of animistic (anthropomorphic) phantasy, marks a stage of "growing up" which bears rather subtly on social adequacy as reflecting a more realistic outlook on experience. Instead of leaving it all to "the Lord" we try to help ourselves. Instead of appealing to "the stars" we look for the fault in ourselves. Instead of blaming pixies or Jove for disrupting our affairs we "remove the bugs" and materialize the mysteries.

So, too, competence as a consequence of maturity varies with environment. The linguistically mature person may be competent in his own language yet incompetent in some other. The blind may be linguistically mature and competent in Braille if not in other forms of writing or print. The deaf may be mature in "written speech" and competent in "sign" communication while incompetent in oral speech. The crippled may be mature for social locomotion but handicapped in physical locomotion.

So also one may be mature yet dependent, as in master and valet, executive and secretary, or husband and wife.

But such competencies in respect to maturity are "special cases" which may be insightfully allowed for as divisions of labor or as artifacts of particular environments. In some instances they respond to the technique of NO (no opportunity or no occasion) scoring and in others to double scoring (Chapter 7). In still other instances the allowance must be interpreted according to the attending circumstances. The same principles apply to idiosyncracies of environmental status or surroundings.

8. The items are selected as representing (a) rather distinct aspects of individual development, (b) rapid emergence within a comparatively brief span of years, and (c) relative freedom from marked individual and sex differences within the normative period of maturation (Chapter 6).

9. The items are conceived as integrative composites of such specific "trait" qualities as personality, habit, motivation, memory, judgment, emotion, special skills. Obviously, any of these influences may be unequally present in the composite. Intelligence is apparently the most important single factor in these performances, but item success also involves experience, judgment, initiative, persistence, aptitude, resourcefulness, and similar factors as holistic utilization. Certainly this scale is not a direct measure of intelligence, skill, personality, or the like, but only of their conative capitalization for social effectiveness.

10. The items are assumed to reflect the correlative exploitation of individual aptitudes and experiences as reflected in more or less universal settings, that is, as not overweighted by economic status, formal education, race, nationality, religion, convention, or what might in general be considered cultural stimulation or restraint. Rather, the items are intended to represent that "inner urge" toward independent self-expression which results in the selective consolidation of discriminated experience. This urge is expressed as eagerness to shift for oneself, to manage one's own affairs, to dominate the environment and to take one's place as a responsible member of the social group. However, this does not deny the likelihood of specific environmental influence. On the contrary, as repeatedly stated, the Scale affords a means for the systematic appraisal of such influence. Our aim here is to avoid *exceptional* modes of behavior in a given milieu.

Pertinent evidence regarding the nature-nurture determinants of social behavior is found in primitive environments where cultural modes may specifically circumscribe social expression. Obviously both the form and the degree of social evolution will be influenced by the social scene, but will be relatively constant for a given segment of it. It remains to determine experimentally how broad this segmentation may be and yet permit such a scale as this to be used without cultural modification. Gross differences in the total environment will require the use of specialized adaptations of this scale which may then be employed as comparative measures of dissimilar cultures. Hence it may prove desirable to use a number of representative scales for such gross cultural differences. Such alternative scales thereby become measures of cultural differences.

11. The significance of retarded or arrested social maturation as seen among the feeble-minded is a further consideration. Here the genetic potential, limited either by endowment or modified by accidents of development, seriously restricts the normal evolution of social behavior. The relatively fixed limits of arrested development reveal the innate character of behavioral evolution as significantly immune to environmental persuasion. The expressive behavior associated with arrested mental development seems neither greatly enhanced by aggressive stimulation, nor utterly inhibited by protective restraint. And the social criterion of feeble-mindedness is the diagnostic point of departure.

Studies on the amelioration of mental deficiency have produced more controversy than agreement. The techniques of operative maneuvers, chemotherapy, physical therapy, environmental enrichment, and progressive educational methods have been generally unconvincing. At best these studies reveal improved expression of constitutionally limited aptitudes without alteration of their organic bases. Or they suggest release from the inhibitions to expression imposed by various orthopsychiatric conditions or physical handicaps.

Confidence in such amelioration is weakened by imperfect diagnosis and the suspicion of adventitious auras. Or the amounts of such benefits may be small or not permanently sustained. Some of the studies reveal delayed development without aid of special overtures, or perhaps during rather than because of treatment. The design of such investigations has not usually satisfied the requirements of complete symptom-complex diagnosis, including etiology, grade, type and extra-therapeutic prognosis. In short, the results from IQ-determined mental deficiency do not necessarily apply to clinical feeble-mindedness.

And improvement is psychometric scores does not *ipso facto* constitute diagnostic alterations.

Item formulation. Each item is initially set forth in a concise phrase or caption which is intended to convey a self-evident meaning. *But these captions require expanded formulation to clarify and delimit their implications.* We have met this problem by a brief elaboration of each item as a definitional guide to its meaning. Each item is defined in such a manner as to facilitate specific judgments rather than to prove unequivocally applicable to all persons and all occasions. Meticulously elaborated definitions are inadvisable as well as impractical, since it is almost impossible to envisage all the minor conditions that would have to be met in every case or any situation. Hence the definitions are phrased thematically rather than crucially.

We are reminded of the solicitous parent who, desiring to prepare his red-haired son for the inevitable taunts of his playmates, affectionately dubbed him "Red-head," "Brick-top," "Sorrel," and such, only to find his son involved in a fight on his first day at school because someone had called him "Rusty," an expression that fell outside the father's anticipation. So we have experienced an extraordinary number of equivalent situations which satisfy the essential requirements of each item, but do so in such a variety of forms as to make impossible an exhaustive description of their details, or even the completely satisfactory use of illustrative examples. We have therefore been forced to limit the definitions deliberately to such general terms as will make the meaning clear and will satisfy the general rather than the specific occasion. This embarrassment is mitigated by the ample use of illustrative examinations (Chapter 8) which offer illuminating examples of item scoring in their associated setting. However, the examiner is specifically warned not to rely too much on these examples, but rather to consider them as suggestive of the kind of situation which is likely to be encountered in respect to which he must exercise his own judgment in each particular instance.

One immediately encounters differences of more-or-less and of better-or-worse in the evaluation of these performances. How long must these have been performed to be considered customary, routine or habitual? How "rich" should they be in duration, amount, variety or extent to receive credit? What allowances are to be made for obvious environmental influences such as social pressure, solicitude or freedom? How evident is the need, occasion or opportunity for the subject to exercise the activities in question? What encouragement, direction, teaching, supervision, or their lack has the subject encountered? How exacting shall the standards be with due regard for variation in time, place and circumstances? What are the limits of such qualifying expressions as ordinarily, acceptably, usually, occasionally? How does the examiner "exercise discretion"? How literally are such words and phrases to be understood?

These and similar questions will at first disturb those who undertake to apply this scale. The initial obviousness of the item captions will give way to skepticism or doubt as their elaborated formulations are considered with earnest candor. This in turn gives rise to an ultimate impression of impracticability of scoring.

The problem of definition is an embarrassment to all science. We observe that it is a warm day, and there is not much doubt about it until we read the thermometer. Then we find that our impression of warmth is modified by humidity, air currents, amount of clothing, time of day, degree of activity, season, and the like. A warm day in winter would be a cold one in summer. A warm day in between two cooler days is psychologically warmer than one between two hotter days. Altitude makes a difference, as does one's mental or physical state at the time. A day too warm for office work may be cool enough for tennis; one cool enough for hiking may be too cool for sailing. We re-examine the (ordinary) thermometer. We thought it was a reasonably accurate instrument; but it is not so accurate as a clinical thermometer, nor so sensitive as the delicate thermopiles of the physics laboratory. We find it is difficult to estimate temperature without regard to altitude, barometric pressure, humidity and other related variables. Nevertheless, we return to the original conclusion, that it is a warm day, and this general observation is agreed to by those present with due regard for the degree of accuracy warranted by the circumstances.

It is this question of circumstances, then, that governs the crudity or the refinement of the measurement for the purpose in hand. It becomes important to effect a compromise between that degree of crudity which allows too wide a margin of error of observation and judgment on the one hand, and that degree of refinement which makes such observation and judgment impracticable on the other.

The principle employed in formulating the definitions of items was therefore a compromise between too little and too much refinement. Enough detail has been formulated to clarify the meaning of each item beyond serious uncertainty and yet allow for flexibility of interpretation within a practicable margin of consistency on repetitive employment. Such minimum definition is designed to circumscribe the interpretation of the performance within explanatory limits which would leave relatively little doubt for inclusion or exclusion of all but marginal or extraordinary instances. On the other hand, we have deliberately avoided over-refinement of definition for the simple reason that as a definition becomes more and more meticulously explicit its application becomes correspondingly impracticable. Minute differences become relatively more rather than less apparent; as one approaches perfection imperfection becomes more obvious.

Precision of definition is also a function of the practicability of standardization, since the Scale is composed of items which rather clearly emerge in a genetic sequence of behavioral development. Item definition is also related to the criteria of use and reliability. These functional criteria, if adequately satisfied, outweigh *a priori* quibbling. Equivocal scoring standards will be reflected in poor item standardization, in low reliability on test-retest performance, and in impracticability for comparative application.

We have, in fact, experimented with various degrees of definition and have touched those extremes where too little or too much meticulousness are equally disturbing. This experience clearly indicated the impossibility of defining any item beyond cavil while still satisfying the severe requirements of standardization, reliability and validity.

This is not to say that precision is not desirable, but only that with high-power magnification perspective and relationship are lost. We view an object. From a distance it is only "some thing." As we near it we observe that it resembles a piece of furniture. On closer view we observe that it appears to be a desk. Its "deskness" is now its important feature. We are not so much concerned (although we might be able to judge) whether or not it might be most useful for library, office, study or parlor. We are not even so much concerned whether it is oak, mahogony, walnut or steel, nor what might be the relation of the material to the desk's use.

Coming still closer we lose the deskness of the object, since now viewing but one end, we see only an expanse of material. Coming still closer this becomes a kind of wall. Applying microscopic vision we observe its cellular constitution. We may in this way determine its material composition.

The point here is that if we are interested merely to classify this object as a piece of furniture, there is a range of distance within which ordinary vision is adequate for this purpose.

From too far a distance we cannot determine the deskness of the object, and at too close a range we lose this judgment. Nevertheless, there is no denying that a careful definition of what constitutes a desk might be of assistance, especially to one who has never seen or heard of a desk, or if one wished to distinguish between a desk and a work table of like purpose.

In the Binet scale we ask the child "What is a chair?". If he says "It is to sit on," we accept this answer for certain purposes, although quite obviously many objects can be sat upon without being chairs, such as a hassock, a sofa, a box, or even the floor or the ground. Or he may say "A chair is a piece of furniture upon which one sits." This is more satisfying, but hardly more explicit, since the other objects just mentioned, except the last two, might be considered furniture. If he says "It is something to sit upon which has four legs and a back," this is better, but still not exclusively definitive. Does the reader know what a chair is? Can he define it within limits which would be adequate? Can he define it with that degree of exactitude which would preclude all other objects from this category? And if he can do this, how desirable is such refinement for inventory purposes?

The examiner employing this social scale is entitled to that minimum of definition which will clarify the meaning of each item beyond serious doubt even though not satisfying all contingencies. Elaboration is necessary in order that the examiner may comprehend the *intent* of the definition under variable conditions of interpretation rather than its exact delimitations in all instances without exercising any judgment of his own. In adopting the former alternative we have deliberately left some choice to the examiner.

This conclusion may prove disturbing to the formal psychometric psychologist. The standardized mental test puts a premium upon uniformity of test administration and scoring. Those who are well drilled in psychometric work will therefore be habituated to a type of examining which calls for little or no judgment on their part. But this appearance of exactness is not a psychological reality. Words do not convey the same meanings to all people. Variations in vocal clarity or inflection, and in the "engagingness" of presentation, supplemented by the examiner's conscious or unconscious gestures, produce variations in the examination which are appreciably variable (the error of the "personal equation of the examiner"). And in the response, the examiner must judge to what extent the subject is able to verbalize his thought or convey his meaning within the variable use of diction. The attempt of psychometric work to force the examination into inflexible presentation and rigid scoring accomplishes only an approximation to desirable precision. (Witness the fruitless attempts to score a copied square as just plus or just minus, and the still more fruitless efforts to assign discriminative values to different degrees of success.) Its consequence is to stultify the psychological aspect of psychometry by reducing it to a mechanical routine.

We have discussed this matter at this length because immediate objections to this scale derive from the apparent lack of precision in the definition of items. To those who will evaluate the Scale by logical criticism rather than by experimentation, it will immediately appear that the Scale cannot "work" because the item formulations are too vague. The answer is to be found in the experimental evidence. If the objection held, it would obviously be impossible to standardize the items with sufficient approximation to stable accuracy. And if the item formulations yielded unstable judgments, then there would be a low degree of reliability on repeated examining. But if the definitions are sufficiently exact for practical purposes, then this will be revealed in the stability of the standardization and in the constancy of results obtained on re-examination, whether by the same examiner or by different examiners. That these requirements are satisfied is evident from the experimental evidence.

Practicability of items. Since the standard method of administering the Scale requires that information regarding the S (subject examined) be obtained from someone familiar with his capabilities, it is necessary that such information be not too difficult to obtain. Hence the questions asked must not be so intimate as to disturb the informant. The information sought should be sufficiently evident and proper so that an informant well acquainted with the S need not experience too much concern for supplying an adequate factual report. Still further, the information sought should not be such as might reflect unduly upon the character of the S or seem to disparage his attainments. In short the items must be discreetly conceived and considerately phrased in order to avoid embarrassment for all concerned.

We repeat that there is an ethical aspect to the examination which requires the examiner to be socially tactful as well as objective. He is not at liberty to seek or to purvey prurient information having to do with the personal affairs of the S unrelated to his social maturity as such. It should be unnecessary to warn examiners that most people are sensitive, not to say defensive, about nearly any kind of examination which might reveal their ability at a lesser level than they would like to have it assumed. Each of us tends to put up a bold front toward the world, and we are more or less constantly on guard about having our real aptitudes exposed to measurement. In using this scale there is definite risk of appearing to pry into the private affairs of the S by seeking surreptitious information from the informant. Such impertinence is properly resented by both informant and S and might discredit the examiner or bring the use of the Scale into disrepute.

Therefore the use of items which involve the conduct of the S in the sense of "good" or "bad" behavior is deprecated as well as questions bearing on the morality or character of the individual *except as these directly influence the expression of social competence.* Careful consideration of this question has led us to the conclusion that moral conduct represents personality variables within various levels of maturity rather than levels of maturity as such. However, we may not ignore those details of conduct which do, in fact, affect social competence.

Item scoring in relation to placement. Many doubts regarding item interpretation may be resolved by considering items with reference to their relative positions in the Scale. This is specially evident within the categorical sequences since each item depends more or less on those which serially precede or follow it. But this hint must not be pursued too far, as we should then be reasoning in a circle. The items are to be scored as strictly as possible on the basis of the performances as defined. Thus, we cannot say that "gets a drink unassisted" requires performing this as a child between one and two years of age would perform it, since the position of the item must be first determined in terms of the definition rather than the definition determined by the placement. Such reciprocal relation between definition and placement has been stabilized through experimental standardization. The examiner is therefore encouraged to adhere to the definition, but to be guided in general by its placement on the assumption that the placement as determined by the original construction of the Scale is a better guide than the examiner's independent opinion as to such placement.

In presenting the detailed item formulations (Chapter 6) the order of presentation follows the categorical arrangement of items, rather than the numerical sequences of age placement. This simplifies interpretation for scoring as well as for administration. The numerical sequences are followed within the categories to facilitate reference. These numerical sequences might have been re-grouped within the categories to indicate the progressive extensions of essentially similar performances, but to avoid confusion these relations are noted incidentally and summarized in the general discussion.

This plan encourages the grouping of closely related items in examining, recording, and scoring, and thereby simplifies item interpretation. However, care must be taken to avoid scoring any item on the basis of its inferential relation to some other item rather than on its own merits. The integrity of the Scale as a whole is not to be ignored, and internal coherence will simplify many apparent difficulties. The Scale can hardly be permitted to "lift itself by its own bootstraps." Perspective clarifies but does not determine item details.

Habitual performance. The examiner will at first be somewhat troubled by the apparent indefiniteness of the temporal criterion of "habitual" performance. This varies all the way from an obvious "never" to an equally obvious "always" or "without exception." Between these extremes many doubtful instances occur. "Customarily" perhaps serves better than "habitually" to allay these misgivings; indeed habitually is used here in the sense of "when circumstances require, make desirable, or warrant" the performance in question. Bearing in mind that the Scale assumes personal initiative and creative dominance as one aspect of item maturation, we must nevertheless reckon with the nature of the occasions which call forth such expression. Occasional performance usually precedes habitual performance as emergent success.

We therefore define habitual in the sense that usually or nearly always (and allowing for minor mitigating circumstances) the item in question is performed without undue pressure as need or occasion makes desirable. This "equal to the occasion" concept may mean continuously, or several times a day, or once a week, or even once in several years according to the nature of the task in question. In other words the item may be called for intermittently, but when called for its successful performance is habitually (substantially always) forthcoming.

One must reckon with *reduced* social competence when the habitual (accustomed) manner of item performance is interfered with. A different way of doing, a varied time for performance, enforced delay or inhibition in expression, or exceptional obstacles to such behavior may so disturb the marginally adequate individual as to seriously disrupt his self-reliance. The flexible personality readjusts quickly to these demands; the slave to rigid habit may be significantly frustrated.

For example: Taking a bath as an accustomed and independently exercised activity may situationally occur (a) more than once a day, (b) daily, (c) weekly on a stated day, (d) with other regular periodicity, or (e) at irregular intervals as opportunity affords. Whatever the temporal occasion, the competent individual routinely does so on his own. But we have known a feeble-minded girl whose failure on an otherwise successful parole placement was due to change in bathing habit. Although quite capable of bathing herself this *had been routinely supervised* at the institution as an administrative protection against scalding. Her new situation required that she bathe herself. There was also a change from shower to tub, and from the regularity of Thursday evening to the novelty of Saturday night. These altered circumstances left her confused and helpless. This girl's employer could not understand the girl's apparent unwillingness. Here formerly habitual success was upset by circumstances where initiative rather than routine were determining requirements.

Habitual performance beyond marginal limits of competence is not so readily upset. The adequately mature person adapts his behavioral expression resourcefully, and quickly accommodates to situational differences. But losses in previously habitual behavior may result from changes in age, health, social circumstances and the like which require special scoring. These exigencies are provided for in the specific techniques of scoring (Chapter 7).

6

Item Specification

> *Continuity is perhaps the most significant characteristic of growth; it implies both a past and a future. In childhood—and for that matter, throughout life—each "level" emerges gradually out of that which has just passed and merges almost imperceptibly toward that which is about to be. Nor is maturity itself a static ideal; rather, it is a progressive adjustment between the individual and the demands of life. This in turn gives to maturity a quality of dependableness.*
>
> —Ruth Brickner

Orientation. Successful technical use of this scale requires that the examiner be intimately familiar with the basic principles underlying its construction, and particularly with the general and specific instructions which govern its administration. *The formulation of items cannot be divorced from these overall considerations.* The student is cautioned not to rely solely on the clarifying material of this chapter, but should relate these details to the method as a whole. This requires conscientiousness, adaptive judgment and experience.

The item specifications are therefore an *interpretative guide* to item-scoring. They are designed to make the general instructions specifically applicable. They have been phrased to forestall difficulties of interpretation, to facilitate rather than to delimit scoring. The examiner must sometimes resort to apparently arbitrary decisions, but such judgments will usually reflect sub-articulate rationalizations which are likely to be sound rather than capricious.

It is, of course, desirable that these definitions be relatively free from need for further authoritative interpretations of implicit meaning. We may say with the confidence gained from fifteen years of experience on the part of many examiners using the Scale in widely different circumstances that satisfactory scoring can be performed with surprisingly little difficulty. This is facilitated by relating the specific item definitions to the general instructions and to the principles underlying the method as a whole.

The *intent* of each item is basic to its definitional formulation. This is first indicated in the general assumptions of the method. It is further implied by (a) the grouping of items as consecutive stages of similar behavior, (b) the abridged item captions, (c) the maturation curves and mean year-values for each item, as well as (d) the definitive requirements of item performances.

The *categorical grouping* of items materially facilitates the technique of examining as well as scoring. Each category represents a different phase of social competence and each item a particular stage of its maturational extension. The *central theme* of each item requires self-sufficiency, social independence, social responsibility or social participation. This is most readily conceived as some form of self-direction in the broad sense. The *specific mode* whereby this central theme is expressed, or the *behavioral form* of self-direction, is particularized within several types of social activity. These behavioral categories are not all-inclusive, but only representative, and their several degrees (the items themselves) are only some of the significant stages which can be clearly differentiated.

Each item is presumed to reveal social *competence* as well as social *maturation* (p. 56). Some items reflect a maturational anticipation of later competence, that is, the item may be a behavioral preliminary to ultimate adequacy. This is indicated in the comment which follows each item definition. In later revisions or extensions of the Scale the categories and the specific items might be altered, contracted, expanded, fractionated or rearranged.

The *item captions* are condensed cues to item meanings. *They should not be relied upon to replace item formulations but only to keynote their intent.* The examiner must resist the temptation to interview the informant by use of direct or leading questions based on item captions. Non-committal lead-questions related to a category as a whole and building up toward item particulars should preferably be employed (Chapters 7, 8).

A general requirement of *discretion* as an element of successful performance pervades all items and is an implicit requirement for assigning item scores. We are reminded of a parole officer's report which told all in the laconic phrase, "No hits, no runs, no errors." As the S "goes to bat" on a given form of behavior he runs the risk of danger to himself or to his surroundings. Successful performance therefore requires that in spite of these risks the S does not get into trouble, or injure himself or others, or damage the material environment, or otherwise compromise himself, his guardians or associates. The examiner may find it specially difficult to score those performances which are successfully achieved by unfair exploitation or by heedless disregard for the rights of others.

This discretional aspect of item scoring is noted casually for some items and explicitly for others, but it is implicit for all. Its observance is of cardinal importance for it reflects the central factor "loading" of self-direction which is in greater or less degree common to all items. The frequent notation "and does not get into trouble in so doing" is a reminder of these implications.

For some S's, discretion or its lack materially influences the total score as an indication of special asset or handicap. Or this may be significantly evident for a single category of items. Recognition of these idiosyncrasies is helpful in the specific evaluation of results. Marked indiscretions (waywardness, impulsiveness, untrustworthiness, misconduct) call for double-scoring as an aid to clinical interpretation (p. 292).

A particular consequence of indiscreet performance is the resulting imposition of restraints to behavior by parents, guardians, elders or superior authorities. It may be that the S is not permitted the opportunity to express himself in certain ways *because when so doing he gets into trouble or seems likely to do so.* Such apparently justifiable limitation to behavior may be regarded as "no opportunity" situations of special significance; +NO scores (p. 284) should not be employed in scoring them, especially in the case of feeble-minded, delinquent and other socially irresponsible subjects.

The discussion for each item follows a general pattern. Each category is presented with overall introductory comment. This is followed by a specification of items within the category in their progressive order of difficulty. Each item number is followed (in parentheses) by its mean total life age standardization norm and then by the item caption. Interpretative sketches illustrate the central themes for about half of the items. Ogives of item success (item maturation curves) also accompany each item showing (a) normative sex comparisons by life-age progression, and (b) normative total LA progression compared with feeble-minded total SA progression. Sex differences for feeble-minded subjects are omitted except for incidental comment when specifically relevant.

The item exposition further includes: (a) introductory comment, (b) standard definition, (c) normative LA standardization comment, (d) feeble-minded SA validation comment, (e) general comment. References to the normative data derive from the population sample of normal subjects employed in the experimental standardization (Chapter 9) arranged by life age. References to feeble-minded validation data apply to the item analysis sample of mentally deficient subjects employed for this purpose (Chapter 10) arranged by social age. All data references in this chapter are specifically delimited to these samples except as specifically noted. Data from other samples are discussed in later chapters. The systematic derivation of data is presented in Chapters 9 and 10 to which the reader is referred for elaboration of the summary data offered in this chapter.

For simplicity of expression certain conventional abbreviations are used as follows: S for the subject (examinee) of the examination (not to be confused with the informant); LA for life age (sometimes termed calendar age or chronological age); SA for social age (converted total scale score); SQ for social quotient (SA divided by LA times 100); Q for quartile deviation (one half the interquartile range of the distribution of a sample); SD for standard deviation (sigma of the distribution of a sample); SE for standard error (sigma of the mean); CR for critical ratio (the statistical reliability of the difference between means). SA year-intervals are noted by Roman numerals; SA scores by Arabic numbers. N refers sometimes to number of S's and sometimes to normative S's, according to context. FM refers to feeble-minded S's; M - F to male versus female S's.

The reader is particularly warned against misinterpretation of comment on normal versus feeble-minded differences, especially when feeble-minded item performance appears to be superior to normative performance. The normative data are arranged by LA disregarding SA; the feeble-minded validation data are arranged by SA disregarding LA. Since the item mean SA's for feeble-minded subjects approximate the item mean LA's for normal subjects at all LA intervals (Chapter 10), the normative LA data are equivalently comparable to the feeble-minded SA data. However, *the feeble-minded subjects always have the advantage of more advanced life ages than the normal subjects.* The mean LA's for feeble-minded subjects range from 14 years at SA 1-2, to 30 years at SA 10-11, falling typically between 15 and 25 years (Table 8, p. 397). This influence of *chronological* maturity sometimes, but by no means always, gives the feeble-minded subjects an advantage *on some items* because of prolonged experience.

The differences, then, between normal and feeble-minded subjects *never* reveal genuine maturational precocity of feeble-mindedness versus normality, but only sometimes a *relative* superiority because of the advantage of more advanced life age. Such superiority is evident for only some items and some categories.

For other items and categories the specific handicaps to social competence produced by and reflected in the feeble-mindedness more than offset the advantage of advanced age. Yet in addition to the greater experience accruing from increased age, these subjects have the environmental assets of generally favorable home and institutional stimulation.

The reader must guard throughout against confusion of ordinal versus cardinal numbers. The first year of life represents life age from birth to the end of the first year, or LA 0 to 0.99, which becomes by approximation and conventional designation LA 0 - 1. Likewise the second year is 1 - 2, the third 2 - 3, and so on. Hence *the ordinal designation is always one interval above the cardinal unit.*

Other general precautions are incorporated in the comments on item scoring and interpretation where they seem most pertinent, or where they first bear directly on a particular item in the order of the categorical presentation. An early example is found on page 88 in the comment following Item 35 (Asks to go to toilet). It is to be assumed that serious students of the method will generalize the comments from all the item specifications as highlighting the Scale as a whole.

Item graphs. The exposition of each item includes maturation curves constructed from the original item data. These, with their derived calculations, constitute a definite contribution to normative genetic psychology as well as to the differential psychology of mental deficiency. They also present the raw data from which other calculations on this scale as a whole are derived. In view of the importance of these data the reader may wish to note the following observations:

1. The item graphs are presented in dual pairs with (a) the normative standardization by sex to the left, and (b) the total normative standardization by life age with comparative validation for the total feeble-minded subjects (item analysis sample) by social age to the right. To simplify presentation the graphs are discontinuous at the "tails" which represent at the left continuous zero-percentiles of passes and at the right continuous 100-percentile of passes (to Item 101). The continuity in both of these directions was established in the original data but has

been omitted on the graphs except as the partial tails suggest such continuity.

2. The theoretical zero for all items for normal subjects is at LA 0.0, that is, the time of birth. Theoretically no item of this scale would be passed, and for these data no item actually is passed, immediately following birth. (Out of our 20 normal subjects at LA 0-1 no S's among two boys and two girls who were under two months of age passed any items of the Scale.) This does not deny maturational behavior on the part of the foetus or the newborn infant, but this scale is not concerned with such behavior. The first plot of neonate behavior would therefore be at the actual zero of postnatal maturation. This point is not represented on these item graphs since the entire first year of life is represented in our data at the midpoint of that year, namely mean LA 0.5. Consequently the graphs are not projected back to the maturational zero point since that point is included in the year-group which represents the first year of life.

3. With respect to the feeble-minded subjects this argument would presumably obtain for LA but not for SA. At SA 0-1 all our feeble-minded subjects (whose LA's exceed their SA's) pass at least one item of the Scale. Yet we have seen some vegetative idiots and also some cataleptics so helpless as not to pass a single item of this scale. Among our feeble-minded S's the lowest score was SA .41 (LA 13.4, SQ 3), the lowest LA was 5.6 (SA 1.6, SQ 28), and the lowest SQ was 2 (LA 35, SA .53). The least number of items passed by any of these subjects was 7 (SA .41). Consequently none were at the maturational zero point of the Scale, although as noted this is not only possible but actually occurs. Here again the zero point for each item is projected from the mid-point of SA 0-1 (SA 0.5) rather than from absolute zero.

4. The data for feeble-minded subjects by sex are omitted, but the general observation may be made that sex differences were not significantly apparent. Summary information on sex differences for the feeble-minded item validation group is contained in subsequent tables (Chapter 10).

5. In general the feeble-minded subjects were approximately fifteen years older in life age than the normative subjects at most LA-SA comparisons. This in itself is one indication of the influence of life age on item performance. Consequently where the performance of the feeble-minded subjects by SA is advanced in comparison to the normative subjects by LA the

difference is to be attributed to the LA differences between the two groups, in respect to which the feeble-minded subjects have the advantage of life age but not of actually superior competence in terms of LA itself.

6. The item graphs for the feeble-minded subjects are based on an "Item Analysis Group" (Chapter 10). They are discontinuous beyond SA 11-12 because of lack of sufficient available S's thereafter. The item analysis group was composed of ten male and ten female subjects at each SA to correspond to the normative LA groups. Although our total feeble-minded population (see Chapter 11) included some subjects from SA's 12-17 inclusive the number of these at each SA was not sufficient to permit adequate calculation either by sex or by totals. The reader is advised that because the item graphs are restricted by this limitation of sampling he should not infer that SA 11-12 is the upper limit of SA for all feeble-minded subjects. This limitation of subjects does not permit the projection of these item graphs for the feeble-minded subjects beyond SA 11-12. Ultimately stable 100 per cent of passes are evident for all items below Item 76. The fragmentary data beyond SA 11-12 for Items 76 to 89 inclusive are incorporated in the item comments. Beyond Item 89 the fragmentary data do not reach 100 per cent of passes at any SA.

7. The item graphs accompany the categorical exposition of item definitions and follow the order of progressive difficulty of the items within categories. To locate particular item graphs the reader may consult the index where the items are listed in alphabetical order of item captions without reference to categorical segregation.

8. Below each graph is a brief summary of the data (see Chapters 9 and 10). The abbreviations for these data not already noted (p. 70) are: M for male (normative S's); F for female (normative S's); N for normal (total normative S's, sexes combined); FM for feeble-minded (total validation S's, sexes combined); Med. for median (LA for normative S's or SA for feeble-minded S's); and D for difference between means (M-F and N-FM). The mean differences *with minus signs* indicate at the left hand (M-F) normative LA sex differences in favor of the *male S's,* and at the right hand (N-FM) LA total normative versus SA total feeble-minded differences in favor of the *normal S's* (the higher means indicating *later* maturation). Similarly, the M-F mean differences *without minus signs* favor the normative *female S's,* while the N-FM mean differences

without minus signs favor the *feeble-minded S's.* SD's are not calculable for those item means which are derived from curves which include only one significant point between 0 and 100 per cent. In such instances the corresponding CR is also lacking (Chapter 9). For those curves which begin at 100 per cent the mean is 0 and the corresponding SD is 0 (see footnote p. 77).

9. Some of the statistical trends for the normative subjects are unconventionally derived for items above 101 (cf. pp. 361-363). The nature of these derivations is indicated in the text accompanying the item definitions or in the comments below the graphs. These derivations have regard for the items which do not ultimately achieve 100 per cent of passes before LA 25 years. Following Item 101 no item attains 100 per cent of passes except Item 103 (which after LA 25 years fluctuates between 90 and 100 per cent of passes). Consequently the order of progressive difficulty for these items has been determined by the total sums of per cent passing (see page 362) rather than by median age or mean age values, which cannot suitably be calculated from such incomplete data.

10. A similar situation obtains for the total feeble-minded subjects for items between Items 76-89 inclusive. Certain of these items do not reach 100 per cent of passes for these feeble-minded subjects and others do not reach 50 per cent of passes. For Items 90-99 inclusive the feeble-minded subjects do not exceed 5 per cent of passes on three items (Items 90, 96, 97) ; do not exceed 2.5 per cent of passes on two items (Items 94, 98) ; and do not exceed zero per cent of passes on all other items of the Scale thereafter. Consequently the graphs for feeble-minded subjects are omitted beyond Item 89. The graphs for total normative subjects are also omitted beyond Item 89 since the comparisons with feeble-minded subjects are either irrelevant or impossible and because the graphs for total normative subjects represent only the mid-points of the normative graphs by sex which can readily be observed either by inspection or calculation from the normative graphs by sex.

11. Most of the item curves have almost startling regularity and pitch. However, some items show marked irregularities with relatively wide spread. Some of these irregularities are probably attributable to the limited number of subjects at each LA, especially when these are segregated by sex. The items which show wide spread or marked irregularities have correspondingly less discriminative value. (The item curves

might appear more impressive if presented as Gompertz curves, but such presentation would have obscured the raw data and might have yielded inferences not warranted by the face value of the data.)

12. On most items there is a noteworthy absence of significant sex differences. Some specific items, especially in the adult range, reveal sex differences which may be attributable to artifacts of scoring or of occupational pursuits. Careful analysis of these items has revealed no serious obstacles to retaining them since they produced no seriously disturbing influence in the Scale as a whole, because of compensating sex influences.

SELF - HELP CATEGORIES

The most obvious evidence of social maturation from early infancy to adolescence is in self-help. Three divisions of this category are evident, (a) general activities, (b) eating, and (c) dressing (including cleansing). The major considerations in these items are the manner and degree to which the individual attends to his immediate personal wants. Some of these performances anticipate other activities of wider significance without constituting specific preliminary stages of those activities.

SELF-HELP
General

> *The parent whose wisdom is compounded of intelligence and emotional control will sense, without the aid of a textbook, the moment at which he can say to himself, "Hands off!"*
>
> —Lillian Symes

It should be noted that although balancing the head, grasping, rolling over, reaching, sitting, standing, and the like, are in a sense preliminary stages of locomotion, we prefer to consider them independently in this category of Self-Help General (SHG) since they are common to a wide variety of tasks and do not lend themselves to ready classification in the other categories.

The 14 SHG items extend from SA O to SA VII. All but two appear before SA III (8 at O, 2 at I, 2 at II, 1 at IV, and 1 at VII). Hence this category is specially applicable to normal infants and to idiot-grade feeble-minded. A series of items preliminary to walking is apparent in Items 2, 5, 8, 9, and 15.

Items 3, 6, 13 and 23 reveal manipulation. Items 35 and 51 indicate toilet reliance. Item 26 might be considered as locomotion, Item 41 as self-direction, and Item 66 as communication. Such serial orders may be employed as examining sequences according to expediency.

ITEM 2. (LA .25) *Balances head.*

If the S raises and voluntarily supports his head, it does not need to be raised or supported for him. This capability is essential to many other socially significant activities. This is not to say that balancing the head is the first significant form of human behavior, but only that it is an early indication of personal independence. Students of infant development will appreciate that this is a relatively advanced form of activity, which in this scale is preceded by crowing and laughing, which in turn have other antecedents not included as such in this scale.

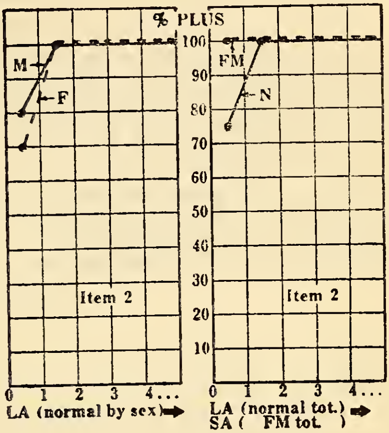
To satisfy this item, the S spontaneously balances his head continuously (about at least one minute) and at fairly frequent intervals as occasion warrants. The S may be held in the erect posture, but the head should be free to move independently of support. Or the S may raise (and hold) his head erect from prone or supine positions, perhaps with shoulders raised. We are not concerned with the psychomotor details, but rather with the fact that the S needs no longer to have his head balanced for him.

Performance on this item may be limited by extreme maturational mental or physical handicap, by serious mental or physical deterioration, or by temporary conditions. Only the last of these receives mitigating credit. Plus-minus credit may be given if the item is passed occasionally but not usually. This item might have been so defined as to require *continuous* balancing of the head (indefinitely longer than about a minute, or at least for so long as the trunk or shoulders might be held erect). But this in turn would require continuous support of the trunk or shoulders for definite or indefinite periods. Such a requirement would supplant this significant item by another as prerequisite. Moreover all activities are socially discontinuous; that is, they occur intermittently. One does not walk all day, nor wash one's face every hour, nor talk uninterruptedly. Hence the *periodic* nature of the performance must not be confused with its *customariness* when called for (Chapter 7).

In the normative sample (Chapter 9) this item is passed by 80 per cent of the boys and by 70 per cent of the girls in the first year of life, and by all subjects thereafter. The mean M-F (normative male-female) difference is .10 years in favor of the boys. The mean total norm is .25 years.

Since there is only one significant point on the curve between 0 and 100 per cent a standard SD (other than the SD of a percentage) cannot be calculated. Consequently a standard CR cannot be calculated. And this applies to all such curves (Chapter 9).

In the validation sample (feeble-minded subjects, Chapter 10) this item is passed by all subjects in all SA groups. The mean SA norm is 0 years.* The mean N-FM (normals by LA versus feeble-minded by SA) difference is .25 years in favor of the feeble-minded.



ITEM 2: *Balances head.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	.13	.20	-		N :	.17	.25	-	
F:	.21	.30	-		FM:	0	0	0	
D:		-.10		-	D :		.25		-

ITEM 3. (LA .30) *Grasps objects within reach.*

The infant at birth displays a reflex grasp of such strength as to support his body weight. With increasing maturation in voluntary attention and muscular control he will for brief moments hold objects placed in his hands. Later development of prehensile movements enables him to pick up, take, and retain small objects within arm's length. And still later he will extend the area of grasping by extending his body length by rolling over, creeping and other locomotor processes.

This item is considered passed if the S spontaneously or without undue urging picks up, pulls, or takes simple objects within arm's length and retains them for something more than a few seconds. He is not to be

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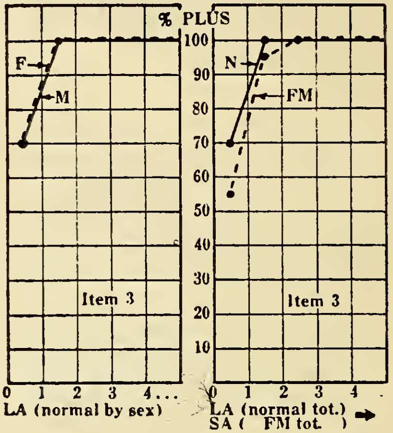
*This norm is actually indefinite between SA 0 to .9 years. It signifies that all S's at this interval and beyond passed the item. This applies throughout the text and for graphs where the mean SA is given as 0 years.

penalized for lack of judgment as to when or what objects are taken, a detail which is considered in later items (e.g., Item 41, Avoids simple hazards). Opposition of thumb and finger as a more effective form of grasping is also considered later (Item 13, Grasps with thumb and finger).

In the normative sample, this item is passed by 70 per cent of each sex in the first year of life and by all subjects thereafter. The mean M-F difference is 0. The mean total norm is .30 years.

In the validation sample the mean SA norm is .50 years, SD .52. The mean N-FM difference is .20 years in favor of the normal S's.



ITEM 3: *Grasps objects within reach.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	.21	.30	-		N :	.21	.30	-	
F:	.21	.30	-		FM:	.41	.50	.52	
D:		0		-	D :		-.20		-

We are not so much concerned here with method as with result. If the S can reach and take objects, they need not be handed him. This activity thus extends the S's social horizon and makes him less dependent upon others to satisfy his wants or needs. It also increases his environmental perils since the objects taken may involve potential hazards in the form of damage to him or to them. This *discretionary* aspect of reach-and-grasp is considered under the category of locomotion with due consideration of the risks involved in extended surroundings.

Note again that, as in all items, special circumstances may limit performance as provided for in Chapter 7. Muscular incoordination may be present as in birth palsy. Environmental stimulation or its lack may be a factor. After taking an object there may be difficulty in letting go, or "ungrasping." Such performances are to be scored *ad hoc* with allowances made for subsequent *interpretation* rather than for modified scoring. The technique of double-scoring (p. 292) may be resorted to for special purposes.

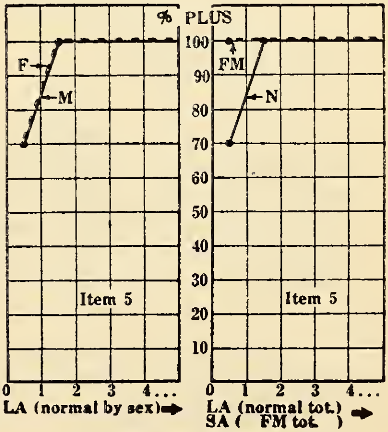
ITEM 5. (LA .30) *Rolls over.*

The gross control of body movement progresses maturationally from head to feet. This, broadly speaking, is revealed in the voluntary exercise of neck, arms, trunk and legs in that order. Our interest here is not, however, so much in body mechanics as in the increase in personal social effectiveness. If the infant (or other S) rolls over, he does not have to be turned over and this is another early evidence of personal independence. Rolling over may also be viewed as a first stage of locomotion which extends the physical environment and thereby the range of social expression. It may thus become the motor means of satisfying Item 12 (Moves about on floor), but is here considered as a general activity in self-help.

The item is considered passed if the S lying prone on a relatively unobstructed surface rather frequently and voluntarily (or often and purposively) maneuvers to supine positions, or vice versa, without assistance. (The movement from ventral to dorsal positions is for most S's more easily and frequently accomplished but is disregarded for scoring purposes. Likewise the manner of accomplishing this feat while noteworthy may be disregarded for scoring.)

The item is passed by 70 per cent of the normative S's of each sex in the first year of life and by all subjects thereafter. The mean M-F difference is 0. The mean total norm is .30 years.

The item is passed by all feeble-minded S's at SA 0-1 and thence forward. The mean SA norm is 0 years. The mean N-FM difference is .30 years in favor of the feeble-minded.

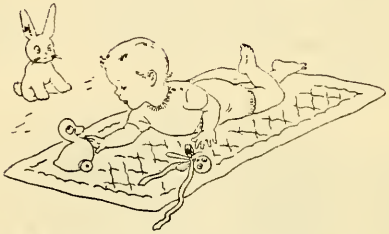


ITEM 5: *Rolls over.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	.21	.30	-		N :	.21	.30	-	
F:	.21	.30	-		FM:	0	0	0	
D:		0		-	D :		.30		-

Since rolling from front to back is somewhat easier than vice versa (because the prone position being less comfortable "motivates" turning over, and this is better facilitated by the use of the arms when prone) it might seem desirable to differentiate these performances. But by accepting either rather than both the scoring is simplified, for usually one act accompanies the other or is acquired in close maturational sequence. When combined for movement in a continuous direction, rather than for alternating movement in a single locus, the performance becomes an early stage of locomotion and a forerunner of crawling or creeping. This aspect is taken account of in Item 12 (Moves about on floor).

ITEM 6. (LA .35) *Reaches for nearby objects.*



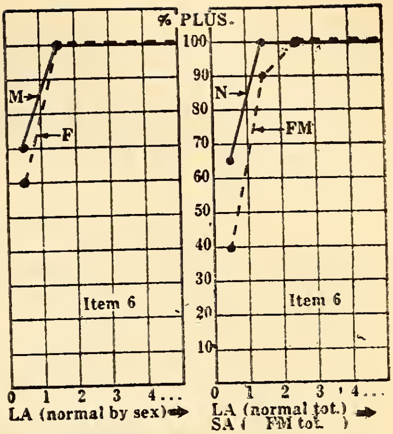
This item is an extension of Item 3 (Grasps objects within reach), usually combined with Item 5 (Rolls over) or other means of locomotion. Here the activity of the S is stimulated by the desire to obtain an object beyond arm's length, and this requires some "displacement," such as rolling over, "hunching," creeping, stepping, toward the object. Logically, therefore, this performance includes some elementary locomotion and correspondingly increases social independence by enabling the S to obtain objects which would otherwise have to be placed within arm's length.

Objects at a distance have a stimulating allure that prompts desires to obtain them. This form of social exploration is less vigorously displayed by feeble-minded S's and by normal S's of passive personality.

The item is considered passed if the S attempts to obtain objects which are nearby but beyond arm's length. The objects are assumed to be such as would attract the S through familiarity, form, color, or other stimulus-incentive, and which are within comparatively easy access, say at a distance of about a few feet, more or less.

The normative sample shows the item passed by 70 per cent of the boys and 60 per cent of the girls at LA 0-1, and by all S's thereafter. The mean M-F difference is .10 years in favor of the boys. The mean total norm is .35 years.

The item is passed by 40 per cent of feeble-minded S's at SA 0-1, 90 per cent at SA 1-2, and by all S's thereafter. The mean total SA norm is .70 years, SD .57. The mean N-FM difference is .35 years in favor of the normal S's.



ITEM 6: *Reaches for nearby objects.*

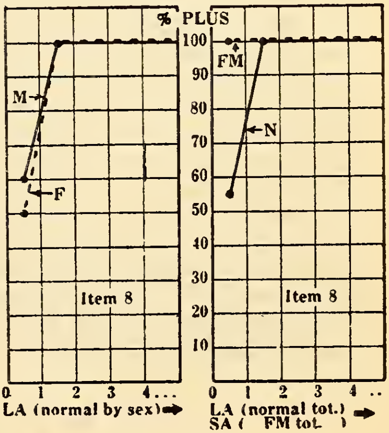
	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	.21	.30	-		N :	.27	.35	-	
F:	.33	.40	-		FM:	.70	.70	.57	
D:		-.10		-	D :		-.35		-

ITEM 8. (LA .45) *Sits unsupported.*

This item is sequential to Item 2 (Balances head) by extension to voluntary control of sitting posture.

This item is passed by 60 per cent of the boys and 50 per cent of the girls at LA 0-1, and by all S's thereafter. The mean M-F difference is .10 years in favor of the boys. The mean total norm is .45 years.

This item is passed by all the feeble-minded S's at SA 0-1 and thereafter. The mean SA norm is 0 years. The mean N-FM difference is .45 in favor of the feeble-minded.



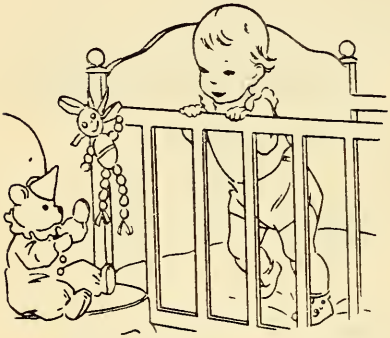
ITEM 8: *Sits unsupported.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	.33	.40	-		N :	.41	.45	-	
F:	.50	.50	-		FM:	0	0	0	
D:		-.10		-	D :		.45		-

The S may raise himself or be raised to the sitting posture. The slight temporal differences in this respect are here ignored as are those other postural sequences which may be involved.

For scoring purposes the sitting is presumed to be on a relatively firm flat surface without provision for other support. Balance may be somewhat unsteady, but the erect spinal posture is maintained for about a minute or more.

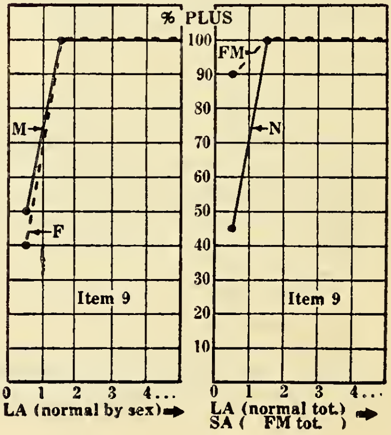
ITEM 9. (LA .55) *Pulls self upright.*



This item is logically sequential to Item 8 combined with Items 2 and 3 and perhaps 6. The S now engages in a number of voluntary postures which reduce his need for assistance from others and which lead ultimately to walking.

This item is passed by 50 per cent of the normative boys and 40 per cent of the girls at LA 0-1, and by all S's thereafter. The mean M-F difference is .10 years in favor of the boys. The mean total norm is .55 years.

Ninety per cent of the feeble-minded S's at SA 0-1 pass this item, and all thereafter. The mean SA norm is .10 years. The mean N-FM difference is .45 in favor of the feeble-minded.



ITEM 9: *Pulls self upright.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	.50	.50	-		N :	.59	.55	-	
F:	.67	.60	-		FM:	.06	.10	-	
D:		-.10		-	D :		.45		-

To pass this item the S is reported as frequently accustomed to pulling himself to a standing position by holding to some fixed object within easy reach. This object should be something other than a person, since a person might pull the S to the upright position, whereas the S is expected to do this for himself. The upright position is then commonly sustained with or without hand support for about a minute or more.

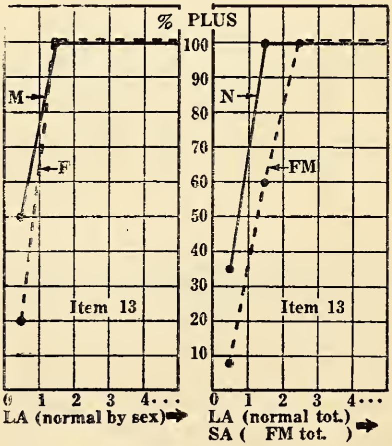
ITEM 13. (LA .65) *Grasps with thumb and finger.*

This item is a particularization of Item 3. Instead of grasping with the entire hand or fist as a simple form of manipulation, the S now uses thumb and finger for obtaining more minute objects or a more effective grasp for which more precise coordination is required. This increases the range in kind of object that can be grasped, and again reduces the amount of attendance needed.

The item is passed if the S commonly picks up small objects by means of thumb and finger opposition. The objects are such as could not readily be grasped without such manipulation. They are not to be handed to the S, but are to be within relatively easy reach.

Fifty per cent of the normative boys and 20 per cent of the girls succeed in this performance at LA 0-1, and all thereafter. The mean M-F difference is .30 years in favor of the boys. The mean total norm is .65 years.

Seven and one-half per cent (counting half-credit as half-S) of the feeble-minded S's succeed at SA 0-1, 60 per cent at SA 1-2, and all thereafter. The mean SA norm is 1.33 years, SD .54. The mean N-FM difference is .68 years in favor of the normal S's.



ITEM 13: *Grasps with thumb and finger.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	.50	.50	-		N :	.73	.65	-	
F:	.88	.80	-		FM:	1.31	1.33	.54	
D:		-.30		-	D :		-.68		-

The ability to pick up small objects is more important socially than may at first appear. Like other such aptitudes, it involves also certain hazards which must subsequently be discreetly avoided. This item is further significant as prerequisite to later self-help items, especially dressing.

Note that this is the first item thus far discussed which shows comparative FM delay (SA versus LA maturation) in spite of comparative LA advantage. The amount of mean difference is small, but the relative amount large. In the absence of normative SD, a CR is not obtainable.

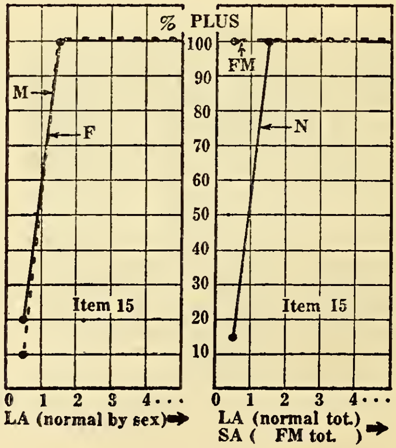
ITEM 15. (LA .85) *Stands alone.*

This is a logical extension of Item 9 and completes the prewalking motor series.

To satisfy this performance the S stands readily on a firm flat surface free from support of person or object. Balance may be unsteady and may be assisted by foot movements, but the standing position is maintained for about at least a minute.

Twenty per cent of the normative boys and 10 per cent of the girls succeed at LA 0-1, and all thereafter. The mean M-F difference is .10 years in favor of the boys. The mean total norm is .85 years. The maturation curve is notable for the sharp rise in frequency of success in the second year of life and the influence of this on the mean (the norm being within the first year of life even though the item is passed relatively seldom within the whole range of that year).

The item is passed by all the feeble-minded S's at SA 0-1 and thereafter. The mean SA norm is 0 years. The mean N-FM difference is .85 years in favor of the feeble-minded.



ITEM 15: *Stands alone.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	.88	.80	-		N :	.91	.85	-	
F:	.94	.90	-		FM:	0	0	0	-
D:		-.10		-	D :		.85		-

This item is more significant as a stage in the motor preliminaries to walking than as clear evidence of social competence *per se*. It is a commonly sought item in developmental histories as are also balancing the head and sitting. The relative advantage in SA maturation for feeble-minded S's derives from their greater physical maturity due to the advantage (about 15 years) in life age.

ITEM 23. (LA 1.30) *Overcomes simple obstacles.*

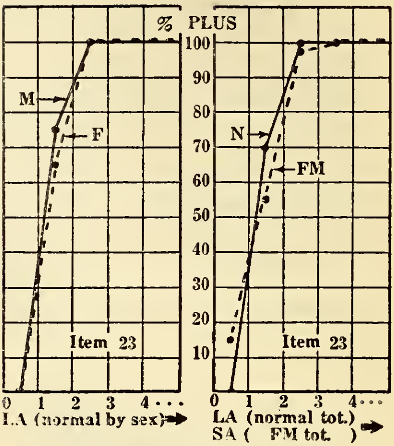
The S now employs a group of motor acts for the exploration of his environment and as a means of extending his social effectiveness. With success on this item the S surmounts simple difficulties which otherwise restrict his activities, or employs new means of extending those activities. Success on Item 18 (Walks about room unattended) typically precedes this item. (The categorical exposition of items tends to obscure their relatedness to items in other categories. The reader may offset this by frequent reference to the Scale as a whole.)

To satisfy this item the S succeeds in such activities as opening closed doors, reaching otherwise inaccessible points, climbing up on objects such as chair or stool to increase his vertical extension, using a stick as an implement for extending his reach, using some receptacle for transferring objects from place to place more effectively. The activities should be somewhat varied though not necessarily very numerous. The criterion of customariness is related to simple situations, as well as to need, want or occasion, and spontaneous resourcefulness.

A number of previous items are here combined as fairly complex (integrative) behavior and the influences of maturation on social competence becomes more clearly evident. Note particularly that such extensions of behavior induce social hazards both to and from the S. *Hence this and corresponding items must be performed without unfavorable consequences to the child or his surroundings.* This involves the general factor of *safe* or *proper* (discreet) as well as effective behavior (p. 68).

This item is performed successfully by none of the normative S's in the first year of life. At LA 1-2 the item is passed by 75 per cent of the boys and 65 per cent of the girls. All the normative S's succeed thereafter. The mean M-F difference is .10 years in favor of the boys. The mean total norm is 1.30 years.

The normal versus feeble-minded comparison shows close parallelism between LA and SA groups. The mean SA norm is 1.33 years, SD .70. The mean N-FM difference is .03 years in favor of the normal S's.



ITEM 23: *Overcomes simple obstacles.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	1.17	1.25	-		N :	1.21	1.30	-	
F:	1.27	1.35	-		FM:	1.38	1.33	.70	
D:		-.10		-	D :		-.03		-

ITEM 26. (LA 1.43) *Gives up baby carriage.*

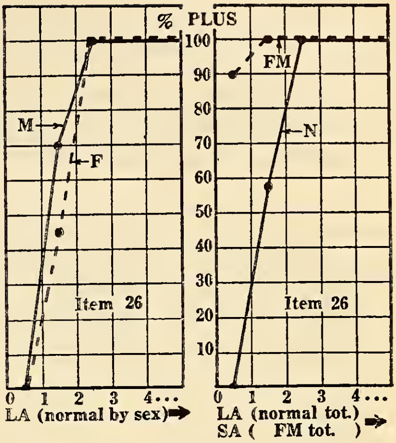
This item might have been placed in the locomotion category except that the locomotion series is intended to reflect the social responsibility displayed in getting about as contrasted with the motor performances involved. Consequently this item is placed in the general self-help category as another expression of immediate personal independence.

A baby carriage, perambulator or auto cradle is commonly used for transporting (other than carrying) children who do not walk appreciable distances. As the child extends his walking aptitude he reveals an increasing aversion to the restraints imposed on his activities by these passive postures. He then usually is taken about in a go-cart or auto chair, is carried short distances in the upright posture, or walks holding some person's hand or some moving object. The item is not intended to suggest that the S now walks long distances, but rather that he may be taken about much more easily. In short, his locomobility is greatly simplified when the perambulator or equivalent may be discarded for simpler forms of getting about. (Note that the use of a wheel-chair as a substitute for a perambulator in the case of cripples and invalids involves definitely more dependence than is the case with a go-cart or equivalent.)

The item is passed if the S seldom is "taken out" by pram or auto cradle, but instead usually walks, uses go-cart or chairseat, or is carried only intermittently when "out walking."

None of the normative S's pass this item at LA 0-1, while 70 per cent of the boys and 45 per cent of the girls succeed at LA 1-2, and all thereafter. The mean M-F difference is .25 years in favor of the boys. The mean total norm is 1.43 years.

Ninety per cent of the feeble-minded S's pass this item at SA 0-1, and all thereafter. The mean SA norm is .10 years. The mean N-FM difference is 1.33 years in favor of the feeble-minded.



ITEM 26: *Gives up baby carriage.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	1.21	1.30	-		N :	1.37	1.43	-	
F:	1.59	1.55	-		FM:	.06	.10	-	
D:		-.25		-	D :		1.33		-

As in other items thus far in which the feeble-minded subjects are relatively superior, attention is again called to their advantage of life age (about 15 years at this level) which affects items where the motor element is relatively more important than the self-dependent element.

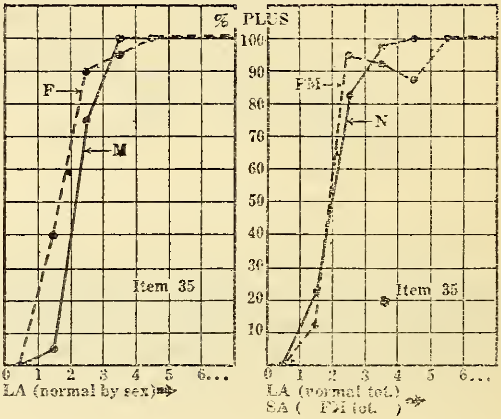
ITEM 35. (LA 1.98) *Asks to go to toilet.*

In early infancy the child lacks bladder and bowel control and requires frequent attendance in this respect. Gradually these controls are acquired, bowel control usually preceding bladder control, and diurnal control usually preceding nocturnal. As this comes about, the child first achieves personal "cleanliness" by indicating his desire to go to the toilet, and by controlled elimination between these periods. At this stage the child still requires assistance at toilet, but if such assistance is available he seldom has toilet "accidents" during the daytime. Night control at this stage is usually not yet established. This performance involves transition from uninhibited reflex to voluntary habit. It is motivated not only by a desire for personal comfort, but also for social approval, and within limits by response to special training.

We are not concerned here with cleanliness resulting from attention in respect to which the child expresses no initiative. It is required that he definitely indicate his needs by pertinent vocalization or gesture rather than by mere general restlessness, thereby relieving his attendants of responsibility for anticipating his needs. As a result of this responsible initiative the S is generally clean as to eliminative habits during the day if help at the toilet is readily available. He is not required to care for himself at the toilet but only to responsibly and clearly call attention to his needs.

None of the normative subjects at LA 0-1 pass this item. Some successes are observed at LA 1-2 followed by marked increases at LA 2-3. All the subjects succeed at LA 4-5 and thereafter. Girls show earlier maturation than boys, especially at LA 1-2; the mean M-F difference is .45 years in their favor, CR 1.61. The mean total norm is 1.98 years, SD .63. The maturation variability is somewhat higher for the girls. (Note that this is the first item thus far discussed for which both SD's by sex, and consequently the CR of the M-F mean difference, are available.)

The normative and feeble-minded maturation curves are nearly coincidental except for slightly more individual delay in success among the feeble-minded S's after SA 2-3. The mean SA norm is 2.13 years, SD .96. The mean N-FM difference is .15 years in favor of the normal S's, CR .57. Note that the SD for the feeble-minded S's is somewhat larger than for normal S's, indicating more sampling variability.



ITEM 35: *Asks to go to toilet.*

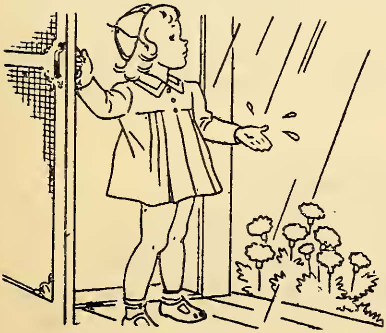
	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	2.14	2.20	.42		N :	1.96	1.98	.63	
F:	1.70	1.75	.71		FM:	1.95	2.13	.96	
D:		.45		1.61	D :		-.15		.57

Performance on this item will at first be thought of as heavily influenced by environmental training and perhaps by the nature and accessibility of toilet conveniences. More probably, successful performance is governed by neurophysiological desiderata. As in all behavior *training is ineffectual prior to the establishment of a morphological basis to profit therefrom.* The ordinarily optimum period for training is that time-interval within which morphological maturation is most evident. Prior to this interval training may be worse than wasted; it may induce negativism, delay or conflict tendencies. Subsequent to this interval, training may be unnecessary or may have to counteract imperfect self-initiated learning. Indeed, *it is our conviction that the normative standardization of the items which constitute this scale is a significant guide to these optimum periods, or psychological moments, for child training.* This assurance is further strengthened by the feeble-minded validation data (again recalling their LA advantage).

The accessibility and nature of toilet conveniences are also evidently less important than at first appears and, like training, influence the results only mildly within the period of neurophysiological development. This does not deny variation in the cultural conventions which attend elimination. Toilet functions are performed under such an extreme range of time, place and material convenience that their variable effect cannot readily be allowed for. We may not totally ignore the presumptive influences of training or convention in *scoring;* the examiner must allow for them in *evaluation* as his insight and the S's circumstances may warrant.

Temporary lapses in control are encountered as associated with illness, emotional stress, change of environment, diet, milk or water supply, and so on. Some specific foods, experiences and activities have a diuretic effect. There are also individual and sex differences in frequency and other aspects of elimination. Likewise relatively permanent loss or abeyance of control is encountered under such circumstances as conflict situations, neurophysiological and anatomical deviations, mental or physical deterioration. These enuretic complexes require special interpretation. But *ad hoc* scoring may still be adhered to as an indication of fact with or without reference to explanation.

ITEM 41. (LA 2.85) *Avoids simple hazards.*

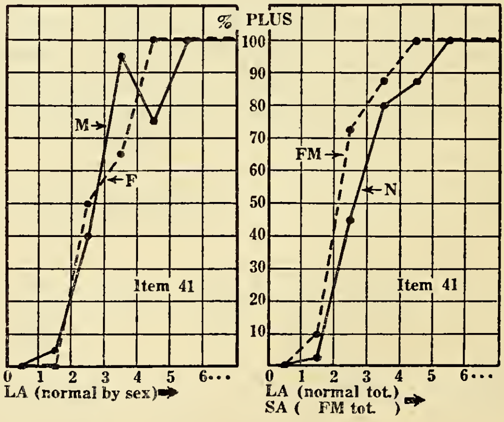


This item is a logical extension of Item 23 (Overcomes simple obstacles). The performances involved afford a concrete illustration of the need for self-protection as compared with the safeguards provided by others. The item reveals appreciation of simple environmental dangers and efforts to avoid them. These dangers are material and personal. They involve caution with regard to strangers, protecting one's self from the natural elements, use of potentially harmful tools or utensils, relations with animals, perils of traffic, and so on. We cannot anticipate all the dangers against which a child of preschool age protects himself, but can mention some that are representative.

To obtain a plus score the self-protection should encompass a fair variety of hazards, rather than a specific number. For example, the S literally comes in (or does not go out) during inclement weather unless suitably clothed or except as he has adult approval. He also figuratively "comes in out of the rain," that is, he meets simple contingencies protectively. He is generally cautious toward strangers and animals; has regard for the possibility of dangerous falls; is careful with matches, sharp utensils, broken glass, heavy objects, dishes, lamps; he keeps out of the street or is watchful while in it or crossing it. In general, while normally venturesome and inquisitive, the S expresses wariness toward familiar experiences and a guarded manner of dealing with new experiences.

The normative curves show some irregular but compensating sex differences. The rapid rise in performance on the part of the boys at LA 3-4 and the notable lapse at LA 4-5 may reflect some imbalance between caution and venturesomeness. The mean M-F difference is 0 years. The SD for the boys is somewhat higher than that for the girls. The mean total norm is 2.85 years, SD 1.00.

The feeble-minded S's are slightly in advance of the normative S's at all SA versus LA intervals. This may be a result of lesser initiative rather than more caution, but might also be due to the factor of experience through more advanced age. The mean SA norm is 2.30 years, SD .76. The mean N-FM difference is .55 years in favor of the feeble-minded, CR 1.91.



ITEM 41: *Avoids simple hazards.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	2.68	2.85	1.12		N :	2.64	2.85	1.00	
F:	2.50	2.85	.86		FM:	2.14	2.30	.76	
D:		0		0	D :		.55		1.91

This item reflects the child's independent capitalization of experience as well as his response to advice and instruction. The performance is somewhat influenced by personality attitudes, such as heedlessness or timidity, and the examiner may note this for other items or for overall behavior. Likewise, the hazards vary with environment and parental solicitude. The examiner must use his discretion as to the significance of such variables for scoring and evaluation.

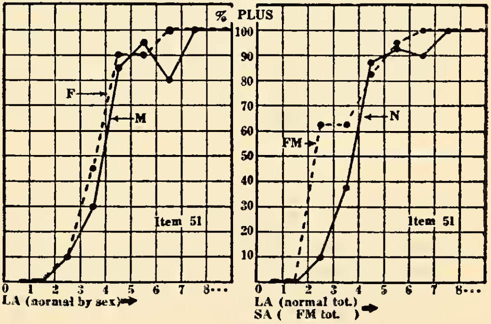
ITEM 51. (LA 3.83) *Cares for self at toilet.*

This item is an obvious extension of Item 35 (Asks to go to toilet).

The S now not only is aware of his eliminative needs, but requires little or no assistance in attending to them, except perhaps for unfastening and fastening back buttons, tight garments or difficult fasteners. He cares for himself completely at the toilet without usual need for other assistance, and is free of daytime accidents. He is also relatively free of night accidents which may, however, occur rarely. These operations may vary somewhat as to time, place, type of toilet or garments, the essential requirement being that the child requires no assistance except with difficult clothing. Thus, in the case of flush toilets, the S should be expected to operate them himself. In the case of non-flush toilets or out-houses, he would not require follow-up. He would also "clean" himself.

The maturation curves for the normative boys and girls are closely similar except for slight individual differences. The curves show rapid rise between LA's 3 and 5, with slight delay thereafter to LA's 6 and 7. The mean M-F difference is .35 years in favor of the girls, CR .64. The SD for the boys is somewhat higher than that for the girls. The mean total norm is 3.83 years, SD 1.19.

The feeble-minded S's show an early but not sustained advantage for SA versus normative LA groups. The mean SA norm is 2.98 years, SD 1.30. The mean N-FM difference is .85 years in favor of the feeble-minded, CR 2.10.

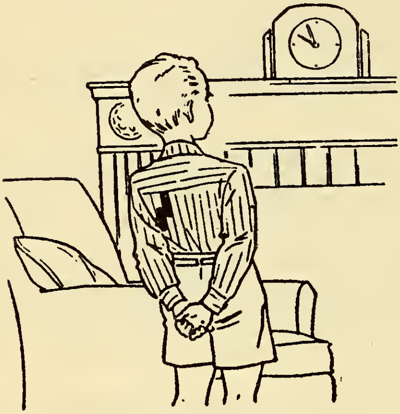


ITEM 51: *Cares for self at toilet.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	3.86	4.00	1.35		N :	3.75	3.83	1.19	
F:	3.61	3.65	.97		FM:	3.30	2.98	1.30	
D:		.35		.64	D :		.85		2.10

Comment on this item is similar to that on Item 35 (p. 88). Note that several Self-Help Dressing items normatively precede this item. These include removing and putting on (or adjusting) garments and washing hands, although this last nicety need not be routinely included as a conventional detail for Item 51.

ITEM 66. (LA 7.28) *Tells time to quarter-hour.*



Following the preschool years the child acquires appreciation of time orientation and employs this for practical purposes. Thus, in the Binet-Simon Scale at successive ages the S knows the difference between morning and afternoon, the days of the week, the months, and the date.

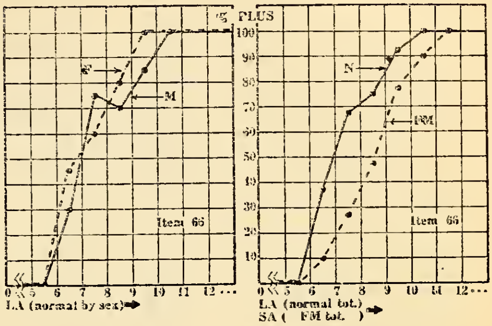
Since such practical information has previously been employed in tests of general intelligence we avoid its use in this scale in spite of its significance for social competence. We have however, included the use of timepieces as a feasible item because so many daily functions are regulated by time, and the child's responsibility in respect to these functions is determined in some measure by his ability to tell time approximately.

For this purpose the S is expected to read an ordinary timepiece (clock or watch) to the nearest quarter hour, and to use this ability in regulating his activities. We are not so much concerned with the intellectual ability to tell time as with the routine employment of this ability in relation to his social needs. By this means he insures his availability for meeting his ordinary obligations of the day. It is not necessary that the S own or carry a timepiece, but rather that he be practised in consulting one in relation to comings and goings. Indeed, this performance may be scored emergently plus (Chapter 7) if the S inquires of others as to the time of day in relation to his responsibilities without actually consulting a timepiece. In some instances, he might be able to estimate the time of day by the position of the sun or by some other device, but this would usually be a more difficult expression of the same performance in the ordinary environment.

The examiner should be on guard against "testing" the S on this item. Not *can* the S tell time, but *does* he employ approximate time orientation in daily activities. Ordinarily the ability to tell time will accompany the use of time-telling.

Normative success on this item is revealed between LA 6 and 10 years. The mean M-F difference is .25 years in favor of the girls, CR .41. The mean total norm is 7.28 years, SD 1.29.

The normal S's show a definite though not very large advantage over the feeble-minded S's at all LA versus SA periods. The mean N-FM difference is 1.20 years in favor of the normal S's, CR 2.75.



ITEM 66: *Tells time to quarter hour.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	6.94	7.40	1.40		N :	6.92	7.28	1.29	
F:	6.83	7.15	1.16		FM:	8.58	8.48	1.40	
D:		.25		.41	D :		-1.20		2.75

Summary. This completes the items grouped under the category of Self-Help General. No significant normative sex differences are apparent for these items. The highest M-F CR is 1.61 (Item 35) and the amount of the corresponding mean difference is only .45 years, although the proportional difference is one-quarter of the base. No other CR in this category exceeds .64 (Item 51) and no other mean difference exceeds .35 years (also Item 51).

In the N-FM comparisons three items (41, 51 and 66) reveal CR's of 1.91, 2.10 and 2.75, respectively. The corresponding mean differences are relatively small in amount although two of them (Items 41 and 51) represent about one-quarter of their bases. Numerically small (though relatively large) differences are apparent for the items for which CR's are not available.

In recapitulation, we may note that the items in this category do not lend themselves satisfactorily to other categorical placement. Nevertheless, within the category certain serial sequences are observable. As noted in the general instructions (Chapter 7), these serial items may be scored through one sequence of questions in which the entire series is encompassed by

SUMMARY of ITEM DATA

SELF-HELP GENERAL CATEGORY

(From Tables 2 and 9)

	Normative by sex						Normal vs Feeble-Minded					
Item	M	F	SD_m	SD_f	D	CR	N	FM	SD_n	SD_{fm}	D	CR
2	.20	.30	—	—	—.10	—	.25	0	—	0	.25	—
3	.30	.30	—	—	0	—	.30	.50	—	.52	—.20	—
5	.30	.30	—	—	0	—	.30	0	—	0	.30	—
6	.30	.40	—	—	—.10	—	.35	.70	—	.57	—.35	—
8	.40	.50	—	—	—.10	—	.45	0	—	0	.45	—
9	.50	.60	—	—	—.10	—	.55	.10	—	—	.45	—
13	.50	.80	—	—	—.30	—	.65	1.33	—	.54	—.68	—
15	.80	.90	—	—	—.10	—	.85	0	—	0	.85	—
23	1.25	1.35	—	—	—.10	—	1.30	1.33	—	.70	—.03	—
26	1.30	1.55	—	—	—.25	—	1.43	.10	—	—	1.33	—
35	2.20	1.75	.42	.71	.45	1.61	1.98	2.13	.63	.96	—.15	.57
41	2.85	2.85	1.12	.86	0	—	2.85	2.30	1.00	.76	.55	1.91
51	4.00	3.65	1.35	.97	.35	.64	3.83	2.98	1.19	1.30	.85	2.10
66	7.40	7.15	1.40	1.16	.25	.41	7.28	8.48	1.29	1.40	—1.20	2.75

the same general interrogation. Note, however, that these sequential items do not necessarily involve continuous gradations in a given case; under special circumstances some superior items in the same series might attain plus scores even though some inferior item might be minus.

These item sequences within the category may be logically extended into other categories. Thus Items 2, 5, 8, 9, 15, 26 extend naturally into the locomotion category and might be used in connection with that category, the items of which are themselves in series. Or, vice versa, these items might be used as the lower extension of the locomotion series, if the locomotion items are scored first. As repeatedly observed, it is not practicable to indicate specifically the shifting of interrogation from one category to another since this will depend upon circumstances and the appropriateness of any series or category in relation to the level or range at which the examination is conducted. Consequently, in presenting these instructions we are constrained to follow an order of presentation which may not be the order that might be followed actually in a given examination. Moreover, the point at which the interrogation may be taken up within a given series or within a given category will be determined in large measure by the interview as a whole. This should follow as a smooth conversation from the initial general orientation data, naturally merging all interrogation in a continuous description of the S's social aptitudes.

SELF-HELP

Eating

My dear brother Augustine
Wants everything he wants,
And what he wants
He doesn't have,
And what he has
He doesn't want.
My dear brother Augustine
Wants everything he wants. —Mein lieber Bruder Augustine

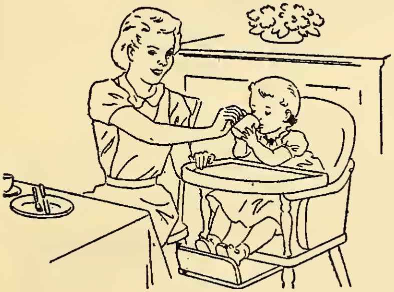
Feeding oneself is another conspicuous manner in which social independence is progressively expressed in the early years. Those who take the various stages of this activity for granted may overlook individuals who because of mental or physical limitations never do learn to feed themselves or those who later in life lose this ability. Most idiots, many cripples, the blind, and some previously normal adults who have become disabled through mental or physical deterioration require more or less assistance in this respect. Viewing this activity with regard for its progressive social value a number of fairly definite stages may be recognized.

It will immediately be evident that the conditions of eating vary materially with cultural situations. The primitive may eat with few utensils, or in social isolation observing certain taboos. But whatever may be the conventional etiquette of eating, its *modus operandi* reflects genetic maturation. It will be necessary to determine by careful study whether manipulating chopsticks is more or less difficult than handling a fork, whether drinking from a cup with a handle is more or less difficult than from a bowl without handle. The complexities of eating, the wide variety of food to which the average United States white resident is accustomed, and the manner of its preparation and serving may present elusive difficulties. Gnawing a bone when knighthood was in flower was presumably easier than is dissecting a broiled fowl under conditions of modern polite society. Certainly these differences must somehow be allowed for.

We are not here specially concerned with customs of eating except as these determine the degrees to which the individual is capable of managing for himself. As far as practicable the following Scale items are restricted to those more fundamental details of eating in respect to which elders are accustomed to give aid to their juniors, or the more competent are accustomed to assist the less competent. It is both difficult and inadvisable to formulate these items in such a manner as to satisfy the wide variations incident to time and place. Until further investigation reveals the actual difficulties involved in different modes of eating, the examiner must rely upon his own good judgment as to the equivalent difficulties.

This category contains 12 items, nine of which occur prior to LA 3 years (2 at 0, 5 at I, 2 at II, 1 each at VI, VII and IX). The items are therefore specially relevant to the second year of infancy or to rather low-grade feeble-minded S's and severe stages of deterioration or handicap. Items 11, 25 and 39 are serial for drinking, Items 28, 38, 62 and 67 for table utensils, Items 16, 20, 30 and 33 for control and discrimination, while Item 75 reveals an overall synthesis.

ITEM 11. (LA .55) *Drinks from cup or glass assisted.*



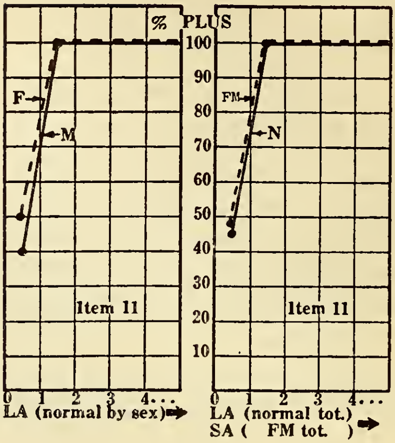
At first thought this seems to be a relatively advanced performance. It is preceded in fact by nursing at the breast, nursing from a bottle, or being spoon-fed. We have avoided these earlier details of eating because of the comparatively wide variation in their performance and have employed this item in their place because of its greater universality.

The item is to be scored plus if the S commonly drinks from a cup, glass, bowl or similar vessel assisted by someone holding the utensil. The S will himself ordinarily also grasp the utensil, but does not employ it independently. In either case the drinking is done with little or no spilling. This means that the child is beyond the spoon-feeding of liquids and even though still nursing drinks supplementary liquids instead of merely mouthing them.

Successful performance on this item reveals emancipation from breast or bottle feeding and a corresponding extension of feeding opportunity and food variety. It is also a first step toward self-feeding. An equivalent item might readily be formulated as an alternative performance in terms of gruels or semi-liquid foods being spoon-fed. Such spoon-feeding is a somewhat less general performance than the drinking of liquids during the period when most infants are breast-fed or bottle-fed.

The item is passed by about half of the normative S's in the first year of life and by all in the second year and thereafter. The mean M-F difference is .10 years in favor of the girls. The mean total norm is .55 years.

The maturation curve for the feeble-minded S's almost exactly coincides with that of the normal S's at corresponding SA vs LA intervals. The mean SA norm is .53 years. The mean N-FM difference is .02 years in favor of the feeble-minded.



ITEM 11: *Drinks from cup or glass assisted.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	.67	.60	-		N :	.59	.55	-	
F:	.50	.50	-		FM:	.55	.53	-	
D:		.10		-	D :		.02		-

ITEM 16. (LA .90) *Does not drool.*

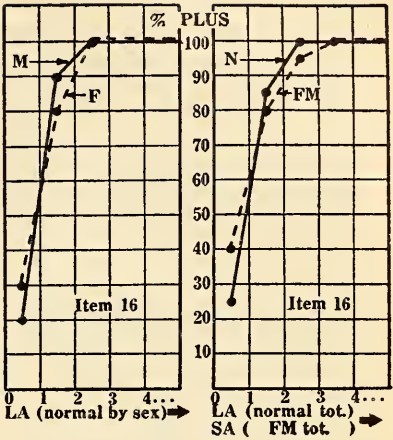
Comparatively few negative items have been included in this Scale. This is one of them. Most infants require more or less frequent attention because of the lack of control of salivation, especially at times of teething. In some circles this causes no concern, but in most the parent attends the child in this respect. Gradually the inhibitory control of salivation is established so that the lips and chin seldom require being wiped except perhaps during or after eating. This is a further step in the child's freedom from attendance by others.

Successful performance is recognized when the S no longer (seldom) requires attention for drooling, no longer wears a salivation bib, or has mastered salivary control except when eating. Note that in later teething drooling is inhibited; hence no special allowance need be made for intermittent control between periods of dentition.

Drooling is not infrequently observed among children and adults with cerebral palsy and among previously normal senile adults. In such cases the item is scored minus if the S must be attended in this respect, or plus if he attends to it himself.

A few children have gained this control by the end of the first year of life. (Indeed, some children drool but little or only rarely from the time of birth, or only slightly at periods of difficult dentition.) By the end of the second year (LA 1-2) 90 per cent of the boys and 80 per cent of the girls succeed. The mean M-F difference is 0. The F sample is slightly more variable. The mean total norm is .90 years, SD .55.

The normative and feeble-minded validation curves are nearly coincident. The mean SA norm is .85 years, SD .80. The mean difference is .05 in favor of the feeble-minded subjects, CR .23.



ITEM 16: *Does not drool.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	.93	.90	.46		N :	.92	.90	.55	
F:	.90	.90	.64		FM:	.75	.85	.80	
D:		0		0	D :		.05		.23

This item clearly shows the influence of general intellectual and social maturation upon apparently physiological function. Note that although the feeble-minded subjects average about 15 years older in LA than the normals at these SA versus LA levels, the comparative successes on this item are substantially the same. The term "drooling idiot" appears redundant.

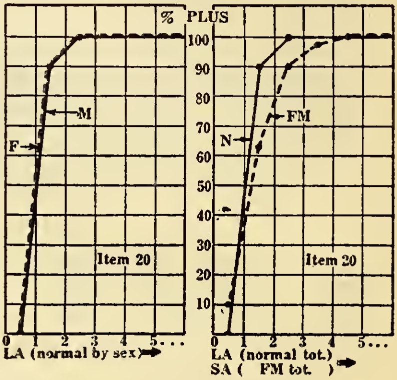
ITEM 20. (LA 1.10) *Masticates food.*

Following breast-nursing and bottle-feeding the young infant eats or is fed prepared semi-solid foods or gruels which require relatively little mastication. In the second year of life the chewing of more solid food offerings occurs, with the S employing teeth and/or gums. In the case of infants who have been almost entirely breast-fed, this activity will be somewhat delayed; but most infants have some opportunity in this regard, or if not, will indicate it by chewing non-edible material. This performance is significant as enlarging the child's feeding through the availability of a wider variety of food with less preparation than if the child eats without masticating.

For a successful score, the S instead of merely "mouthing" soft food breaks up and salivates solid or semi-solid food by chewing or mastication. Naturally those children who have no opportunity in this respect will be temporarily penalized in this item. Plus NO scoring should be circumspect, since lack of chewing makes feeding solids inadvisable. Note that feeding which requires mastication may be undesirable because of the hazards of choking, regurgitating or digesting. Delay in solid-food intake may be based on well-advised restrictions, e.g., as in the typical soft diet offered to idiot-grade mental deficients.

This item shows rapid maturation in the second year of life, without sex difference, in the normative sample. The mean total norm is 1.10 years.

The normative S's show a slight relative advantage over the feeble-minded S's in spite of the mean LA advantage of the latter. The mean SA norm is 1.40 years, SD .81. The mean N-FM difference is .30 years in favor of the normal S's.



ITEM 20: *Masticates food.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	1.06	1.10	-		N :	1.06	1.10	-	
F:	1.06	1.10	-		FM:	1.26	1.40	.81	
D:		0		-	D :		-.30		-

Swallowing unchewed solids may, as noted, disturb the child's health or food habits. Dentition and gum resistance are usually antecedent rather than prerequisite, but may be periodically somewhat inhibitory. The discrimination of edible substances and the removal of food-coverings are provided for in Items 30 and 33. As to customs, we recall the two-year-old whose morning pork chop and cup of coffee caused no apparent immediate distress!

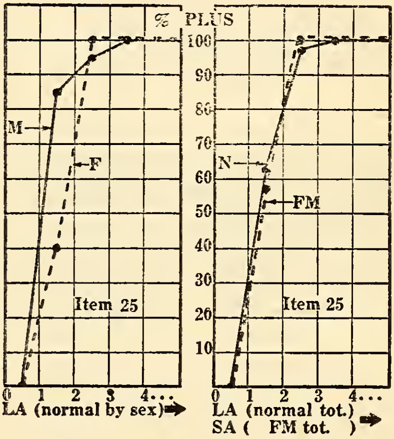
ITEM 25. (LA 1.40) *Drinks from cup or glass unassisted.*

This is an extension of Item 11. In place of cup or glass, some other drinking vessel might be employed, such as a bowl or dipper. The important distinction is that the child does not require assistance except that the liquid and the vessel containing it may be supplied him. This item has a further evolution in Item 39 (Gets drink unassisted) in which the S is responsible for obtaining the utensil and the liquid.

The item is to be performed without serious hazard or spilling, since otherwise the amount of independence which the S experiences in drinking unassisted would be offset by the consequences of doing so in an unsatisfactory manner. The surroundings, utensils and liquid should be familiarly acceptable since otherwise the strangeness of the environment, article or beverage might interpose resistive inhibitions. The S may grasp the vessel as may please him, ignoring handle or using both hands. As an associated superior detail he might pour from pitcher to drinking vessel or dip from a bucket or other large container, but this would be an embellishment rather than a requirement.

The item shows rapid maturation for the boys in the second year of life, and in the third year for the girls. The mean M-F difference is .40 years in favor of the boys. The mean total norm is 1.40 years, SD .45.

The normative LA versus feeble-minded SA curves are closely identical. The mean SA norm is 1.43 years, SD .40. The mean N-FM difference is .03 years in favor of the normal S's, CR .22.



ITEM 25: *Drinks from cup or glass unassisted.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	1.09	1.20	.42		N :	1.30	1.40	.45	
F:	1.67	1.60	-		FM:	1.37	1.43	.40	
D:		-.40		-	D :		-.03		.22

This and other relatively "explosive" (rapid maturation) curves, and those coupled with closely identical normative LA versus feeble-minded SA performances in spite of the latter's markedly higher associated life ages, are witness to the practicability of the Scale and the formulation of items. While not all the items ideally satisfy these desirabilities, they do for the most part successfully approximate them. The marked dependence of feeble-minded performance on SA rather than LA for items that *a priori* seem functions of age rather than ability is specially clear in the lower levels of the Scale.

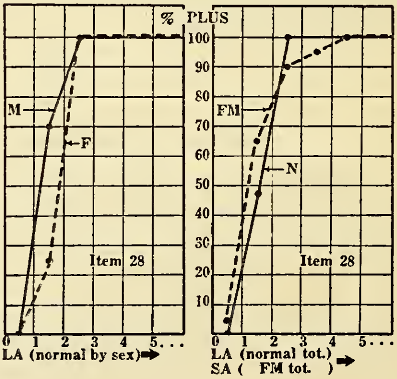
ITEM 28. (LA 1.53) *Eats with spoon.*

In eating some solid foods the S may use his fingers. However, in the average United States environment, when eating most solid or semi-solid foods some eating utensil is employed. In its simplest form, this consists of using a spoon and bowl, cup, or plate, and commonly requires eating in the sitting posture at a table.

To satisfy the item, the food may be cut up or broken up before serving, but the actual consumption of food by means of a spoon is accomplished without help and without appreciable spilling. If a plate is used instead of a cup or bowl, a "pusher" of some sort may be used, such as a piece of bread, or some utensil. The child, of course, might without detriment to the score eat in a standing posture, or even while sitting on the floor. The important thing is that after the food is prepared for him he does not have to be fed. The process is obviously somewhat less difficult if a baby-spoon is used in place of the ordinary teaspoon.

The item is passed by 70 per cent of the boys and 25 per cent of the girls in the second year of life and by all the normative subjects thereafter. The mean M-F difference is .45 years in favor of the boys. The mean total norm is 1.53 years.

The normative and feeble-minded validation curves are closely approximate. The mean SA norm is 1.45 years, SD .82. The mean N-FM difference is .08 years in favor of the feeble-minded.



ITEM 28: *Eats with spoon.*

M:	1.21	1.30	–		N :	1.55	1.53	–	
F:	1.83	1.75	–		FM:	1.25	1.45	.82	
D:		–.45		–	D :		.08		–

Some children are breast-fed to a relatively late age and this may delay the habitual use of spoon through limited opportunity. Maturation seems more significant than training; hence too generous allowance should not be made for lack of opportunity or parental indulgence.

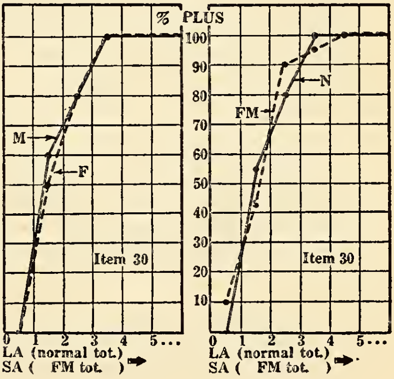
ITEM 30. (LA 1.65) *Discriminates edible substances.*

In the early stages of infancy it is necessary to guard the child against eating objects indiscriminately, especially such as might be harmful. As the child learns to distinguish edible from inedible substances and resists the temptation to ingest anything at hand, this vigilance may be relaxed.

In passing this item, therefore, the child typically avoids mouthing or swallowing substances commonly considered unsuitable for eating, except as this may be a tentative "sampling" of such substances. The essence of the item requires that the S does not require frequent watching in respect to his tendency to carry objects to the mouth.

Normative success in this performance is achieved between the second and fourth years of life. The mean M-F difference is .10 years in favor of the boys, CR .29. The total norm is 1.65 years, SD .74.

Normative LA and feeble-minded SA maturation are closely similar. The mean SA norm is 1.63 years, SD 87. The mean N-FM difference is .02 in favor of the feeble-minded subjects, CR .08.



ITEM 30: *Discriminates edible substances.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	1.33	1.60	.75		N :	1.41	1.65	.74	
F:	1.50	1.70	.73		FM:	1.66	1.63	.87	
D:		-.10		.29	D :		.02		.08

The S should not eat certain substances, such as candy, peanuts or bananas before their coverings are removed either by himself (Item 33) or by others. The item is therefore related to Item 41 (Avoids simple hazards), and to Item 33 (Unwraps candy). The S should not be held responsible for avoiding substances which are in themselves edible but not suitable for digestion, such as green apples, or foods which might have a deleterious effect on him, beyond his reasonable range of information or experience. (Note also comment on Item 33.)

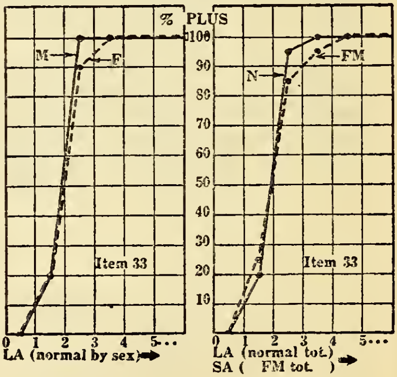
ITEM 33. (LA 1.85) *Unwraps candy.*

This item is closely related to Item 30. Although the item caption is specific, it is intended as a general activity, namely the removing of coverings from various edibles. This requires not only appreciation of the inedibility of these covers but also some resourcefulness in removing them.

Score plus if the S as a rule uncovers enclosed edibles, without need of reminder, before masticating them. "Candy" is to be understood as a generic term for similar "eats," including gum or cakes. Likewise, "unwraps" includes peeling bananas and oranges (but not apples or edible skins) removing shells from nuts, and rejecting pits from such fruits as prunes, peaches and cherries. The S may obtain assistance from others when such manipulation requires strength or skill, or he may reject or eat around pits and cores. Ordinarily, inedible skins, shells and pits will be removed in advance for him, but covers or centers which involve only simple manipulation should be removed by him, usually by hand or by the hands and teeth or mouth. Essentially the S more than discriminates the inedible parts of such food substances and on his own initiative removes or rejects those parts except for assistance where dexterity beyond his years is necessary. Otherwise the performance reverts to Item 30.

The item reveals rapid onset of accomplishment between the second and third years of life. The mean M-F difference is .10 years in favor of the normative boys. The mean total norm is 1.85 years, SD .38.

The feeble-minded SA maturation curve closely follows the normative LA progression. The mean SA norm is 1.95 years, SD .68. The mean N-FM difference is .10 years in favor of the normal S's, CR .56.



ITEM 33: *Unwraps candy.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	1.88	1.80	–		N :	1.90	1.85	.38	
F:	1.93	1.90	.46		FM:	1.92	1.95	.68	
D:		-.10		-	D :		-.10		.56

To repeat, the caption designation for this item should not be taken too literally. Some S's are not given candy; "candy" is here used for any edible substance from which coverings or cores may readily be removed. If the S refuses to eat such substances instead of removing their inedible accompaniments, such refusals are to be considered under Item 30.

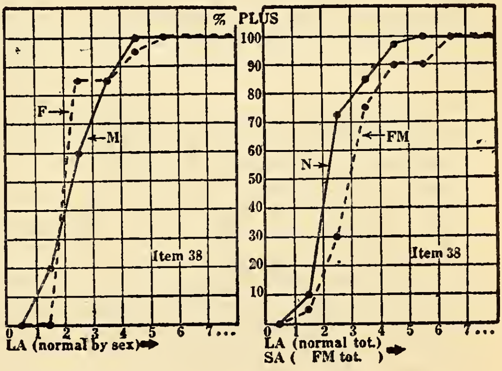
ITEM 38. (LA 2.35) *Eats with fork.*

In the typical United States environment, the use of a fork supplements or replaces the use of a spoon. This involves not only more dexterity, but also certain hazards, since the fork is a more "dangerous" implement than the spoon. Otherwise this item is substantially the same as Item 28.

The food may be prepared for the S, but he is expected to eat without appreciable spilling. It is not required that the fork be used for cutting, but only for conveying the food from the plate to the mouth, either by piercing the food or by balancing it on the tines. Ordinarily, but not necessarily, a plate will be used in such eating instead of a bowl.

Success on this item is achieved without appreciable sex variation between the second and fifth years of life by the normative S's. The mean M-F difference is 0. The mean total norm is 2.35 years, SD .86.

The normative S's significantly excel the feeble-minded S's by a small advantage at all LA versus SA maturation periods. The mean SA norm is 3.10 years, SD 1.19. The mean N-FM difference is .75 years in favor of the normal S's, CR 2.23. This may be due in part to a tendency to restrict the use of forks by low-grade feeble-minded subjects because of the hazards involved.



ITEM 38: *Eats with fork.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	2.25	2.35	.92		N :	2.14	2.35	.86	
F:	2.09	2.35	.80		FM:	2.94	3.10	1.19	
D:		0		0	D :		-.75		2.23

The use of a fork to replace or supplement a spoon involves nicety as well as convenience in eating. It applies of course to solid or semi-solid foods. A "pusher" may be employed without detriment to score. The use of a baby-fork facilitates the performance with normal infants.

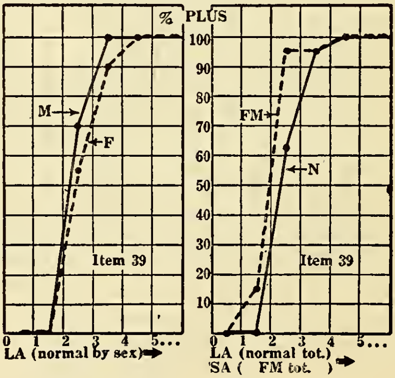
ITEM 39. (LA 2.43) *Gets drink unassisted.*

This item extends Item 25 by enabling the S to get a drink for himself instead of merely drinking what is offered him.

For this purpose the S uses any acceptable drinking utensil, but does so without assistance. This may be a cup, glass, dipper, bowl or other device with or without handle (including fountain, stream, hand dipping, and so on). The utensil may be employed in any manner the S desires. He should, however, be able to obtain this utensil for himself if it is reasonably accessible. Likewise, the source of the beverage should be accessible, whether from a tap, bucket, bowl or other source. We should not expect the S to draw the water from a pump or well, nor to drink face down from a spring or brook. There should be no external dangers to overcome, nor is it required that the S use good judgment as to the sanitary safeness of the supply. Success in these respects yields *a fortiori* plus score. However, some discrimination should be expected as to hot and cold, waste or unclean, prohibited, dangerous or unfamiliar liquids.

Successful normative performance matures rapidly between the third and fourth years of life. The mean M-F difference is .25 years in favor of the boys. The mean total norm is 2.43 years, SD .51.

The feeble-minded S's show a relatively small but statistically reliable advantage over the normal S's. The mean SA norm is 1.95 years, SD .51. The mean N-FM difference is .48 years, CR 2.89.



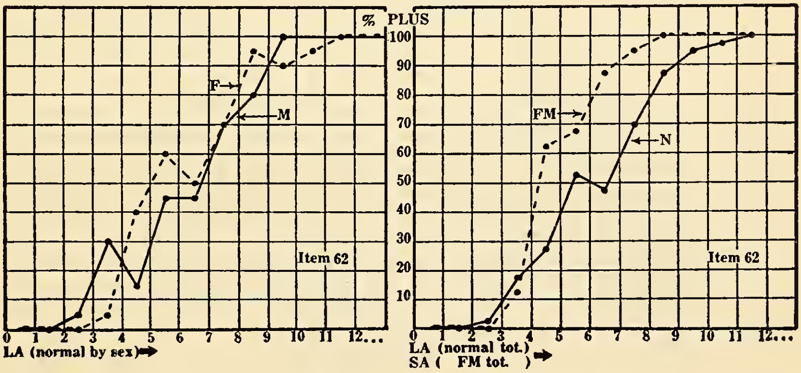
ITEM 39: *Gets drink unassisted.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	2.21	2.30	–		N :	2.30	2.43	.51	
F:	2.41	2.55	.61		FM:	1.94	1.95	.51	
D:		-.25		-	D :		.48		2.89

In general this item shows the S ordinarily successful in getting a drink "on his own" as desired, in familiar surroundings and without hazard or messing. The element of hazard is implicitly (but not explicitly) provided for in Item 41 (Avoids simple hazards) which "comes" a half-year later. Hence the careful avoidance of unsanitary, dangerous or prohibited "drinkables" is not urged as a necessary (though desirable) detail in this item.

ITEM 62. (LA 6.03) *Uses table knife for spreading.*

Whereas the use of a fork supersedes that of a spoon in less than one maturational year, more than three and a half years (on the average) intervene between use of fork and use of knife. This is practically confirmed in the field of merchandising; baby-spoons and baby-forks are more commonly marketed than are baby-knives. The use of a knife is generally more hazardous and requires more manipulative skill than does the use of a fork. The knife is used for both spreading and cutting, but the former use appears much simpler than the latter.



ITEM 62: *Uses table knife for spreading.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	6.70	6.10	2.26		N :	6.00 ?	6.03	2.24	
F:	5.75 ?	5.95	2.18		FM:	4.25	4.75	1.34	
D:		.15		.14	D :		1.28		2.14

This item is satisfied if the S uses an ordinary table knife in familiar circumstances for spreading bread with butter, jam or other "spread," provided this is done without appreciable messing. As in the other eating items, in performing this act the S should not require more assistance in cleaning up after him than would be required if the act were performed for him.

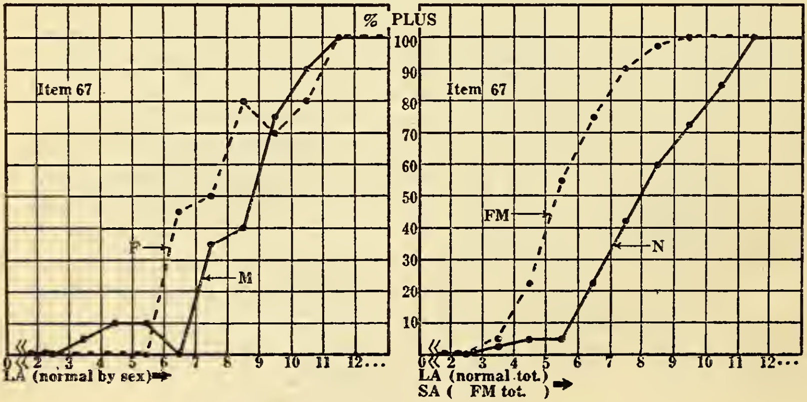
This item is the first of those thus far discussed which shows a wide spread (or large SD) for the period of effective maturation. This may speculatively be attributed to (1) actually prolonged period of maturational success, or (2) variable environmental stimulation, opportunity or restriction. The absence of significant sex variation confirms neither of these speculations. The mean M-F difference is .15 years, CR .14. The mean total norm is 6.03 years, SD 2.24. The normative F and total N curves reveal "awkward distributions" (p. 363) with consequently dubious medians.

The graph shows an evident and statistically reliable advantage of the feeble-minded S's (in SA versus normative LA groups disregarding about 18 years difference in LA) over the normative S's, coupled with similar wide maturational range. The mean SA norm is 4.75 years, SD 1.34. The mean N-FM difference is 1.28 years, CR 2.14, with the normative SD nearly twice that for the feeble-minded.

ITEM 67. (LA 8.05) *Uses table knife for cutting.*

This item extends Item 62.

In performing this item the S is not required to overcome special difficulties such as those offered in the case of tough meat, meat on bones, fowl or other circumstances requiring special skill and patience. To satisfy the item the S no longer needs someone else to cut up the food served for him (whether meat or other edibles) but usually does this satisfactorily for himself as occasion warrants.



ITEM 67: *Uses table knife for cutting.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	8.79	8.35	1.91		N :	7.93	8.05	1.95	
F:	7.50	7.75	1.95		FM:	5.35	5.55	1.37	
D:		.60		.66	D :		2.50		4.58

Like Item 62, this performance shows delayed and irregular emergence, maturing principally between the seventh and twelfth years of life. The mean M-F difference is .60 years in favor of the girls, CR .66. The mean total norm is 8.05 years, SD 1.95.

The maturational advantage of the feeble-minded S's on this item is materially greater than on Item 62 and is one of the largest amounts and highest CR's of all items studied (Table 9). The mean SA norm is 5.55 years, SD 1.37. The mean N-FM difference is 2.50 years, CR 4.58.

Many S's will be encountered whose parents find it simpler in the family routine to perform this item for the S instead of permitting or encouraging him to do it for himself. However, one notes that most S's tend to assume this responsibility as soon as they can. One might speculate that on this item and on Item 62 the delay and irregularities in the maturation curve may reflect (1) incomplete examining, (2) prejudiced informing, or (3) variable social circumstances. Among these and the previous speculations the most plausible seems to be actual slowness of acquisition in the performance as such.

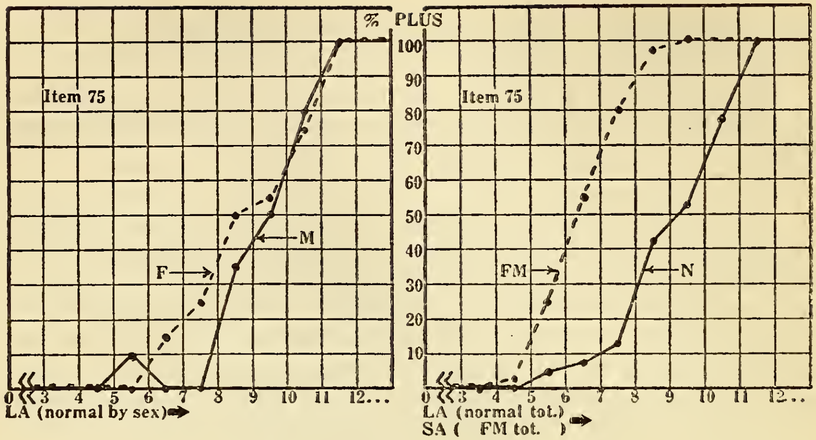
ITEM 75. (LA 9.03) *Cares for self at table.*

This item represents a general consolidation of the principal details of feeding, in that the S now looks after himself for substantially all his needs at the table.

Within a plus score the S may occasionally (but not ordinarily) receive minor assistance in some relatively difficult details such as removing a boiled egg from the shell, cutting difficult meat such as fowl, removing bones from fish, extracting the contents of a hot baked potato, and so on. He may be served at table as a social custom, but otherwise he appropriately helps himself according to accepted standards (without too much emphasis on the details of etiquette), and in general requires little or no attention at the table. Such performance is assumed to be successful away from home as well as in familiar surroundings. Attention which reveals family or other table services not really needed by the S are not bars to plus scores.

The normative maturation curves show fairly rapid maturation between the ninth and twelfth years of life. The mean M-F difference is .45 years in favor of the girls, CR .60. The mean total norm is 9.03 years, SD 1.61.

As in Item 67, the feeble-minded S's show a marked advantage over the normative S's. The mean SA norm is 6.40 years, SD 1.12. The mean N-FM difference is 2.63 years, CR 5.84.



ITEM 75: *Cares for self at table.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	9.50	9.25	1.41		N :	9.25	9.03	1.61	
F:	8.50	8.80	1.75		FM:	6.33	6.40	1.12	
D:		.45		.60	D :		2.63		5.84

In scoring this item the related performances should be relatively familiar and free from penalties due to specific customs or inelegant table manners. The examiner will, however, require judgment in respect to table habits and the general social proprieties to be expected.

Summary. In this category we find no statistically significant normative sex differences. The highest CR is .66 (Item 67) and the largest mean difference is .60 years (Item 67).

The normative-feeble-minded comparisons show five items (38, 39, 62, 67 and 75) where the CR is 2.00 or higher. The first three of these CR's are below 3.00 and the corresponding mean differences are small in amount but proportionally one-quarter to one-third of their bases; the last two are fairly large in amount and more than one-half of their bases. Item 38 favors the normal S's; the other four favor the feeble-minded.

This category is readily explored by beginning with such a general lead question as "How much help does S receive at the table (or in feeding himself)," or "I suppose S looks after himself in eating (or at the table)," or "How far along is S—" and so on. The informant will usually enumerate some details spontaneously; these may then be pursued to more and more specific elaboration of particulars.

SUMMARY of ITEM DATA

SELF-HELP EATING CATEGORY

(From Tables 2 and 9)

	Normative by sex						Normal vs Feeble-Minded					
Item	M	F	SD_m	SD_f	D	CR	N	FM	SD_n	SD_{fm}	D	CR
11	.60	.50	—	—	.10	—	.55	.53	—	—	.02	—
16	.90	.90	.46	.64	0	—	.90	.85	.55	.80	.05	.23
20	1.10	1.10	—	—	0	—	1.10	1.40	—	.81	—.30	—
25	1.20	1.60	.42	—	—.40	—	1.40	1.43	.45	.40	—.03	.22
28	1.30	1.75	—	—	—.45	—	1.53	1.45	—	.82	.08	—
30	1.60	1.70	.75	.73	—.10	.29	1.65	1.63	.74	.87	.02	.08
33	1.80	1.90	—	.46	—.10	—	1.85	1.95	.38	.68	—.10	.56
38	2.35	2.35	.92	.80	0	—	2.35	3.10	.86	1.19	—.75	2.23
39	2.30	2.55	—	.61	—.25	—	2.43	1.95	.51	.51	.48	2.89
62	6.10	5.95	2.26	2.18	.15	.14	6.03	4.75	2.24	1.34	1.28	2.14
67	8.35	7.75	1.91	1.95	.60	.66	8.05	5.55	1.95	1.37	2.50	4.58
75	9.25	8.80	1.41	1.75	.45	.60	9.03	6.40	1.61	1.12	2.63	5.84

SELF-HELP

Dressing

What shall I do for him now that he is grown?
Send him forth on his own.
Shall I no longer tuck him in bed?
Give him a latchkey instead.
Shall I not warn that pride takes a fall?
Not at all; not at all.
(I must never forget he's a man among men
Now that he's ten!)—Jean Crosse Hansen

Like eating, some degree of dressing is a universal activity and one in respect to which the development of independence and responsibility is readily obvious. Primitive forms of concealment or adornment are in some respects more complex than those of our time and place. Likewise body cleanliness is a concern which, while varied in demand or expression, is a universally distributed observance. It is possible to job-analyze the details of dressing with a high degree of refinement, but somewhat more difficult to select those critical stages which reflect a minimum of individual differences and which are sufficiently typical to permit ready formulation of definition.

This category deals with two separate aspects of dressing, namely, personal cleanliness and the use of garments. The examiner must exercise some discretion in regard to variations in social standards and customs and in respect to variation in time and mode of toilet routines and type of clothing worn.

The 13 items in this category extend from early infancy to adolescence (1 at I, 3 at II, 2 at III, 2 at IV, 2 at VI, and 1 each at VII, VIII and XII-XV). The clustering of 7 items at II, III and IV makes the category specially relevant for the preschool (later infancy) years or the borderline between high-idiot and low-imbecile degrees of feeble-mindedness. A minor cluster of 4 items is evident at VI to VIII years (early childhood or high-imbecile feeble-mindedness).

Two series of items are apparent, (a) dressing and undressing (Items 21, 37, 42, 47, 54, 65) and (b) cleansing (Items 40, 50, 52, 64, 70). Items 65 and 74 include both. Item 86 synthesizes the category and adds superior details.

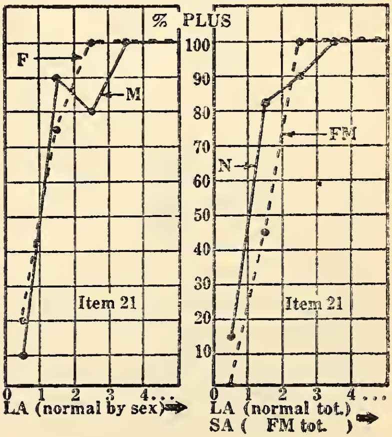
ITEM 21. (LA 1.13) *Pulls off socks.*

Although dressing logically precedes undressing, in actual performance the latter is generally the easier task and is performed earlier. An early stage of undressing is seen in the removal of foot coverings. In the young infant these are easily manipulated if not too firmly fastened.

"Socks" is here used as a generic cue for bootees, slippers, and unfastened shoes or stockings. To pass the item the S removes such footwear without help, provided these are already unfastened, or can be readily unfastened by the S. This should be done as a deliberate and frequent act of undressing rather than as merely occasional, playful or perverse activity. The articles in question are presumed to be of sufficiently loose fit or simple fastening to permit easy manipulation. Thus, shoe laces, slipper buttons, sandle buckles, elastics or garters should not constitute serious impediments.

This performance shows rapid normative maturation in the second year of life. The mean M-F difference is .15 years in favor of the girls, CR .44. The mean total norm is 1.13 years, SD .73.

The normative S's excel the feeble-minded by a mean difference of .42 years.



ITEM 21: *Pulls off socks.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	1.00	1.20	.82		N :	1.02	1.13	.73	
F:	1.05	1.05	.61		FM:	1.59	1.55	-	
D:		.15		.44	D :		-.42		-

The examiner should inquire whether the S may have been disciplined against this activity in its playful stage, or whether the activity is authoritatively restricted. (If so, this may require NO scoring.) It is not required that the S show good judgment as to time and place, but rather as to purpose.

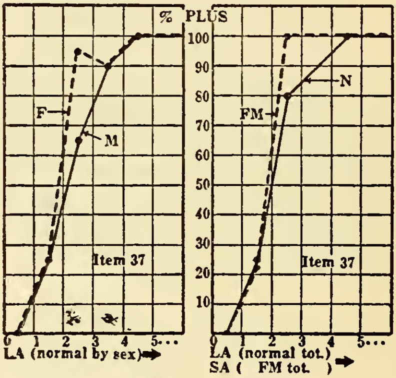
ITEM 37. (LA 2.05) *Removes coat or dress.*

This item resembles Item 21, but is relatively more difficult from the point of view of manipulation.

Again the garments involved, such as coat, dress, sweater-coat, waist or overcoat, may first be unfastened or should permit easy manipulation by the S. It is assumed that the clothing is not torn or damaged in the process. Under these circumstances the S usually removes such outer garments without assistance. Intermittent assistance may be received as a sentimental courtesy, but such aid is not needed.

The normative performance on this item reveals a mean M-F difference of .30 years in favor of the girls, CR .79. The mean total norm is 2.05 years, SD .82.

The feeble-minded S's show an advantage of .27 years over the normal S's.



ITEM 37: *Removes coat or dress.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	2.13	2.20	.88		N :	1.95	2.05	.82	
F:	1.86	1.90	.71		FM:	1.86	1.78	–	
D:		.30		.79	D :		.27		-

The caption phrase, "coat or dress," refers to any outer garment which may be removed by slipping off when unfastened, with or without need of pulling over the head. No assistance is conceded except for unfastening, and the performance is to be usual rather than occasional. Help may be allowed for tight garments but presumably loose-fitting garments will be worn frequently enough to permit standard scoring.

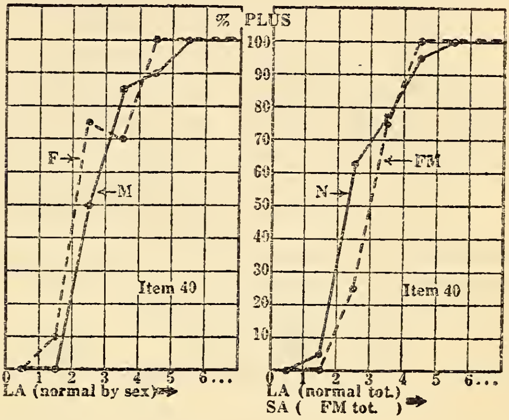
ITEM 40. (LA 2.60) *Dries own hands.*

Washing various parts of the body logically precedes drying them. But drying is in fact easier than washing. Thus, drying the hands without assistance is found to be easier than washing them and maturationally precedes other lavational details.

This item is satisfied if the S dries his own hands acceptably without help, employing towel or other suitable means beyond merely exposing them to the air or wiping them on his clothing. The hands may be washed for the S; the towel may be supplied him, or he may obtain it for himself if accessible. However, the S requires no assistance in adequately drying his hands.

The normative mean M-F difference is .30 years in favor of the girls, CR .67. The mean total norm is 2.60 years, SD .95.

The normative S's excel the feeble-minded by .40 years, CR 1.52.



ITEM 40: *Dries own hands.*

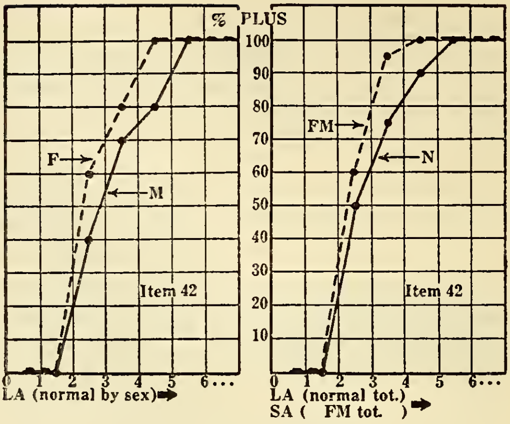
	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	2.50	2.75	.90		N :	2.28	2.60	.95	
F:	2.12	2.45	.99		FM:	3.00	3.00	.65	
D:		.30		.67	D :		-.40		1.52

ITEM 42. (LA 2.85) *Puts on coat or dress unassisted.*

This item is satisfied if the S is able to put on outer garments, such as dress, coat or overcoat, without help or need of adjusting, except for buttoning, which may be done for him. Such clothing should be such as not to require difficult manipulation and should be of such a style as not to interpose exceptional manipulative difficulties. "Coat or dress" includes garments noted in comment on Item 37, but not necessarily coveralls, leggings, rubbers (see Item 54).

The normative mean M-F difference is .50 years in favor of the girls, CR 1.14. The mean total norm is 2.85 years, SD .97.

The mean N-FM difference is .40 years in favor of the feeble-minded, CR 1.60.



ITEM 42: *Puts on coat or dress unassisted.*

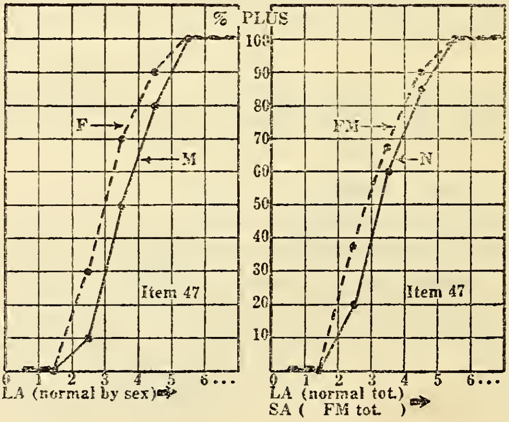
	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	2.83	3.10	1.10		N :	2.50	2.85	.97	
F:	2.33	2.60	.75		FM:	2.33	2.45	.51	
D:		.50		1.14	D :		.40		1.60

ITEM 47. (LA 3.35) *Buttons coat or dress.*

Soon after the child has mastered putting on garments he learns to button or fasten them.

The normative maturation curves show the girls consistently in advance of the boys. The mean M-F difference is .50 years in their favor, CR 1.19. The mean total norm is 3.35 years, SD .92.

The feeble-minded S's by SA are consistently in advance of the normative S's by LA. The mean N-FM difference is .30 years, CR .98.



ITEM 47: *Buttons coat or dress.*

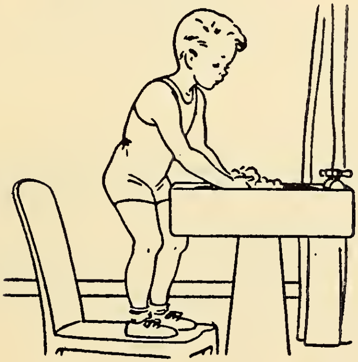
	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	3.50	3.60	.87		N :	3.25	3.35	.92	
F:	3.00	3.10	.90		FM:	2.92	3.05	.96	
D:		.50		1.19	D :		.30		.98

For present purposes the buttons or fasteners should not present serious difficulties of manipulation. The clothing should be reasonably well adjusted and the fastening done in such a manner as to require little or no readjustment or assistance. Success on Item 42 usually but not necessarily precedes this item. (It is assumed in this and other dressing items that if the S has difficulty with some articles of clothing because of details of manipulation, there will nevertheless be a sufficient number of articles of clothing which can easily be manipulated so as to remove any doubt as to his general ability in these regards.)

"Buttoning" here includes such fasteners as buttons (other than tiny), slide fasteners, snaps and buckles, but not necessarily hooks and eyes or tie-fasteners. In general these should not be difficult to manage, as when too new or too old, too stiff or too limber. Hence "habitually" here means as a rule and when no serious material obstacles to manipulation are present.

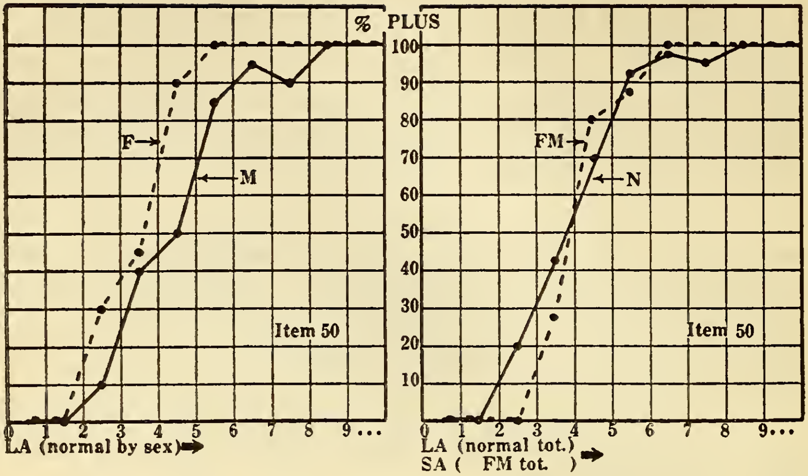
Some may question the absence of an item for *unbuttoning* garments. Such an item was "tried out" but did not "standardize" satisfactorily.

ITEM 50. (LA 3.83) *Washes hands unaided.*



Washing the hands without assistance is found to be more difficult than drying them. Moreover, this task must be done more thoroughly in order to avoid need of assistance.

This item is satisfied if the S washes his hands (usually with soap or similar cleanser) without need of "going over" and also dries them. The S may receive admonishment, but this should not have to be too often or too persistent. As one criterion for the adequacy of washing, the towel or other means of drying should not be unduly soiled as a result of inadequate washing. In this the S should be able to perform the entire task for himself, making his own arrangements as to soap and water (provided these are readily accessible), tempering the water, not messing, and in the highest state of performance "cleaning up." This last step need not be insisted upon, since it may under some circumstances be a specially inculcated habit which (unfortunately!) is not always attended to even by some adults. This "removing the evidence," such as disposing of or suitably replacing the towel, cleaning or removing the receptacle, rinsing and replacing the soap, and other homely meticulous details affords a good example of the difference between fastidious habits as opposed to raw performances in this and other categories. This "touching up" of item performance is an added glory which, all too seldom followed through, should not disturb the punctilious examiner on this or other items.



ITEM 50: *Washes hands unaided.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	4.50	4.30	1.56		N :	3.77	3.83	1.38	
F:	3.61	3.35	.97		FM:	3.93	4.05	.87	
D:		.95		1.56	D :		-.22		.59

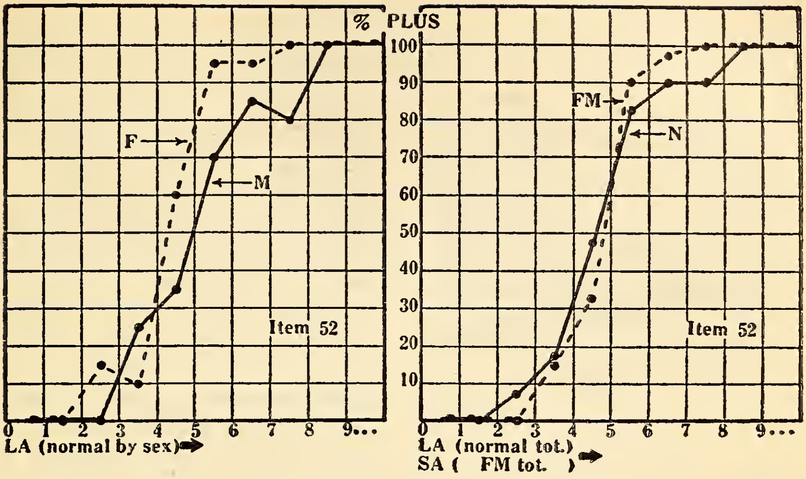
The normative performances show fairly rapid maturation between the third and fifth years for the girls with slightly delayed success (larger SD) for the boys. The mean M-F difference is .95 years in favor of the girls, CR 1.56. The mean total norm is 3.83 years, SD 1.38.

The normative versus feeble-minded performances are maturationally similar (disregarding differences in LA) but with sharper SA versus LA rise (lower SD) for the feeble-minded. The mean N-FM difference is .22 years in favor of the normal S's, CR .59.

ITEM 52. (LA 4.65) *Washes face unassisted.*

This item is much the same as Item 50, except that washing the face presents special difficulties which have to be taken into account. Thus, adequate washing and drying of the ears is so much more difficult (or at least less well attended to) than washing the face itself, that this detail is excepted at this stage. Indeed, there is some literal warrant for the expression "Not dry behind the ears, *yet.*"

The item is satisfied for plus scoring if the S washes and dries his face without need of help except for the ears. He may be assisted on occasion for soap in the eyes. Like washing his hands, he may require being told, but not too often.



ITEM 52: *Washes face unassisted.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	4.93	5.05	1.66		N :	4.57	4.65	1.46	
F:	4.30	4.25	1.10		FM:	4.80	4.65	.86	
D:		.80		1.21	D :		0		0

The mean normative M-F difference is .80 in favor of the girls, CR 1.21. The mean total norm is 4.65 years, SD 1.46.

The normative and feeble-minded validation curves are closely similar except for briefer span (lower SD) for the feeble-minded S's. The mean N-FM difference is 0 years.

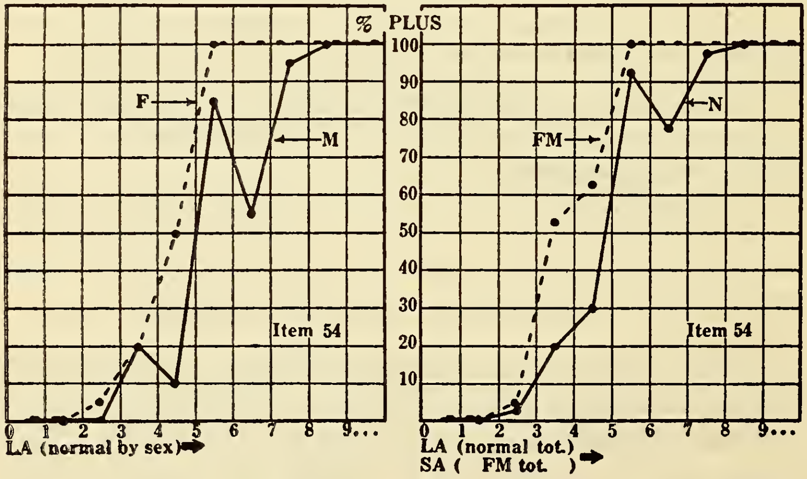
In respect to other details, the comment on Item 50 applies on this item also. There should be little need for inspectional "going over" except perhaps for special occasions.

This item affords an illustration of those minor individual differences (such as cleansing the ears) which disturb the maturational specification of inclusive details. If cleansing the ears is included in the definition of success for scoring, then the performances are confused with individual differences which frustrate a satisfactory standardization. Yet such a detail may be included in a later item where these differences are cancelled by a higher degree of maturation.

ITEM 54. (LA 4.80) *Dresses self except tying.*

At this stage of dressing the child (or handicapped older person) is able to "manage" most ordinary articles of clothing if these are laid out or designated. Thus, the S now puts on his own underclothing, his outer clothing, shoes, hat, ribbons, ties, and so on, and fastens them except for tying. He may receive some assistance in the manipulation of those articles which require special aid, such as the suitable adjustment of scarfs or mufflers, ribbons, overshoes, slip-over and all-over garments, garments buttoning up the back, and garments which are close fitting or otherwise specially difficult to put on.

This item is satisfied if the S routinely performs the ordinary task of dressing in everyday clothes, except for tying, with only minor assistance on exceptional garments or for exceptional occasions such as dressing for parties, or dressing for going out when the occasion requires more than usual care. The item includes Items 42 and 47 but not necessarily 50 and 52.



ITEM 54: *Dresses self except tying.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	5.03	5.35	1.50		N :	4.82	4.80	1.33	
F:	4.50	4.25	.84		FM:	3.45	3.80	.96	
D:		1.10		1.93	D :		1.00		2.66

The normative standardization shows rapid maturation for the girls between the fourth and sixth years of life, with longer delay and irregular lapses (unaccountably marked at LA 6-7) and consequently larger SD for the boys. The mean M-F difference is 1.10 years in favor of the girls, CR 1.93. The mean total norm is 4.80, SD 1.33.

The feeble-minded S's show a consistent advantage (and lower SD) over the normative S's. The mean N-FM difference is 1.0 years, CR 2.66.

The irregular performance of the boys (which is reflected in the total N) may be due to changes in type of garments at different years not encountered in the case of girls, but this is not clearly confirmed by specific inquiry, nor is it evident from the FM SA curve.

ITEM 64. (LA 6.23) *Bathes self assisted.*

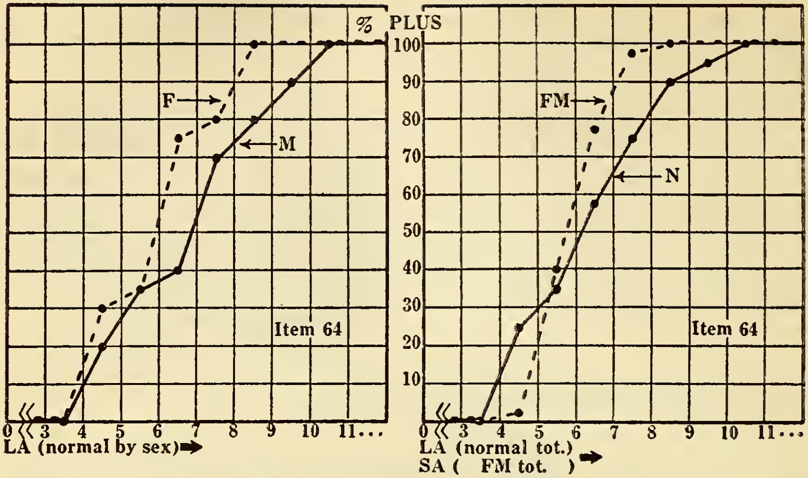
In the early stages of total body cleansing, the mother, nurse, or other attendant "gives" the child a bath. This requires preparing the shower, tub, or bathing medium, tempering the water, and the entire process of bathing. In the course of time, the child splashes around in the tub and gradually is permitted to assist in the bathing process. Subsequently the child is able to bathe himself under supervision with some assistance, and this stage is represented by this item.

The significance of the item derives from the fact that except for the preparatory and final details, the S may be left to accomplish the bathing routine for himself. In other words, the supervision does not require the immediate presence of a second person in the actual act of bathing except as noted.

To satisfy the item the S bathes and dries himself "overall," including the face, but not including washing and drying the ears, the hair or the back. The bathing means may be prepared, and the water drawn and tempered for him; also the S may be "inspected" and "touched up" in those areas where special cleanliness should be assured. The tub or receptacle may be drained and cleaned for the S. Some protective supervision may be advisable in special circumstances (e.g., risk of scalding by hot water or other dangerous conditions).

This item shows steady maturation between the fifth and ninth years of life for the normative girls, and between the fifth and eleventh years for the boys. The mean M-F difference is .85 years in favor of the girls, CR 1.08. The mean total norm is 6.23, SD 1.73.

The feeble-minded S's show more rapid maturation (lower SD) in SA groups than do the normative S's at LA intervals. The mean N-FM difference is .40 years, CR .92.



ITEM 64: *Bathes self assisted.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	6.83	6.65	1.91		N :	6.17	6.23	1.73	
F:	5.88	5.80	1.41		FM:	5.77	5.83	.81	
D:		.85		1.08	D :		.40		.92

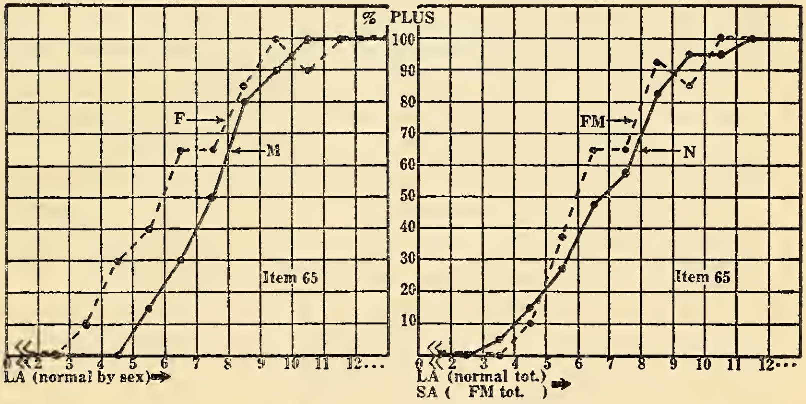
Care should be taken by the examiner not to be too lenient in scoring those S's who merely playfully assist at the bath, nor too severe in scoring those S's where, because of solicitude, impatience or sentiment, the S is not permitted to bathe himself. However, plus NO scoring on this item should be used with discretion even though in some environments the regimentation may make it difficult for the S to exercise independent activity. Note that in spite of presumptive limitations the (institutionalized) feeble-minded subjects show no SA disadvantage. Table 10 shows only one + NO score for the FM S's and none for the N S's.

ITEM 65. (LA 6.75) *Goes to bed unassisted.*

In this item the act of undressing is related to the various other responsibilities at retiring. The undressing itself at this stage is relatively simple, but is only one part of the associated routines (e.g., preparing for the night at the toilet, and divorcing one's self from the social environment). Going to bed alone and attending to one's needs in social isolation marks a definite step in maturation in respect to which the tasks are less important than the conditions under which they are performed.

To completely satisfy the item the S voluntarily, and as a customary performance, removes himself from the rest of the household and without assistance prepares himself for bed. He might, however, be reminded of the hour, or be accompanied to bed and "tucked in" as an evidence of affection, but such assistance should be sentimental rather than necessary.

The routine involved, such as simple washing, brushing the teeth, going to the toilet, lighting or extinguishing the illumination, should be reasonably interpreted according to circumstances. Thus, presumably taking a kerosene lamp to the bedroom, going to bed in the dark or at a relatively remote distance, using an outside toilet, and other possibly apprehensive details may be waived if these apparently interpose special difficulties. Scoring discretion must also be exercised in respect to other details such as the regulation of heat and ventilation. Also it is permissible for some older and more responsible person to check up on the outcome, adjusting these somewhat more remote factors. Timidity and fear of darkness should be regarded as marks of immaturity, unfortunate conditioning, or poor training which render the scoring minus in fact but may be allowed for in evaluation. Contrariwise, the situation is less difficult if the S shares the bed or room, or retires in company with others. These many variable circumstances make it necessary to allow the examiner considerable leeway for scoring.



ITEM 65: *Goes to bed unassisted.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	7.50	7.35	1.46		N :	6.75	6.75	1.95	
F:	5.90	6.15	2.18		FM:	5.95	6.45	1.79	
D:		1.20		1.37	D :		.30		.49

This item shows steady though not very rapid normative maturation between the fourth and eleventh years of life, with the girls consistently in advance of the boys (but with larger SD). The mean M-F difference is 1.20 years, CR 1.37. The mean total norm is 6.75 years, SD 1.95.

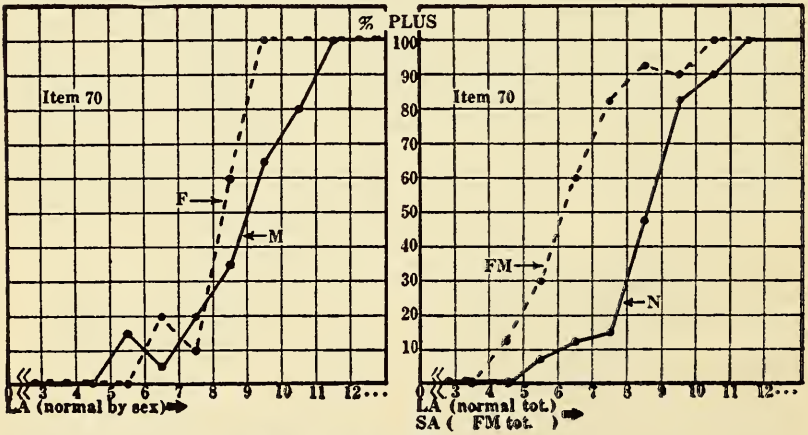
The normative versus feeble-minded performances are closely similar in SA versus LA groups. The mean N-FM difference is .30 years in favor of the feeble-minded subjects, CR .49.

This item reveals relatively delayed maturation as compared with those previously discussed. However, its evolution is steady and consistent for both normal LA and feeble-minded SA progressions. These consistencies tend to offset the misgivings regarding adequate scoring.

ITEM 70. (LA 8.45) *Combs or brushes hair.*

Care of the hair represents a relatively late achievement in the process of "dressing," but in spite of its apparent scoring difficulties, shows rather rapid maturation when it emerges.

To satisfy the item, the S typically brushes or combs his hair, without assistance, well enough not to require "going over" under ordinary circumstances. We are not concerned here with the total care of the hair as a routine habit, but rather that the S fulfills the need for personal attention to this detail when dressing, or before going out, or "repairing" his appearance, or in anticipation of receiving company. We may distinguish here between the *need* for help and the *desire* of the mother or attendant to somewhat affectionately review the outcome even though there may be little such practical need. In the case of girls, this item includes simple dressing of the hair such as braiding, and the use of suitable pins and ribbons. In the case of girls with bobbed hair or curls, this item is performed much the same as by boys, and the successful parting of the hair seems to be the principal difficulty. In the case of girls with long hair, the braiding or other manner of dressing of the hair need not be too skilfully done, but should be done well enough to satisfy ordinary circumstances. It is not required that other details of hair-dressing which might ordinarily be done by a second person, such as curling the hair, be performed independently. Washing and drying the hair are not required until Item 86.



ITEM 70: *Combs or brushes hair.*

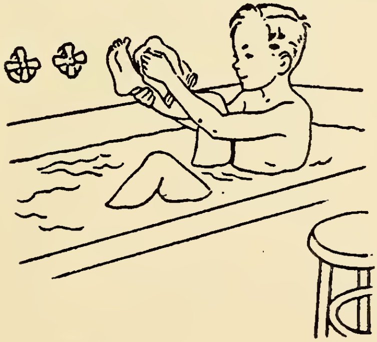
	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	9:00	8.80	1.75		N :	8.39	8.45	1.47	
F:	8.30	8.10	1.00		FM:	6.17	6.33	1.58	
D:		.70		1.05	D :		2.12		4.29

The performance normatively matures principally between the ninth and tenth years of life for the girls, and the ninth and twelfth years for the boys, except for a few precocious subjects at the sixth, seventh and eighth years. The girls precede the boys at all but two minor LA intervals (with smaller SD). The mean M-F difference is .70 years, CR 1.05. The mean total norm is 8.45 years, SD 1.47.

The feeble-minded S's show a marked advantage at all SA versus normative LA intervals. The mean N-FM difference is 2.12 years, CR 4.29.

The common expectation that girls succeed later on this item than boys because of greater manipulative difficulties is clearly contradicted by these data. The girls definitely excel the boys although not by a very marked or significant amount. Similarly the feeble-minded excel the normative S's, and the comparative difference is fairly large in both amount and statistical reliability. Girls presumably overcome the manipulative obstacles by more intense motivation; the (institutionalized) feeble-minded subjects are under consistent stimulation plus the mean advantage of fifteen to twenty years in life age. Insofar as the performance is dependent on motor aptitude this is not clearly apparent from related evidence or inference.

ITEM 74. (LA 8.85) *Bathes self unaided.*

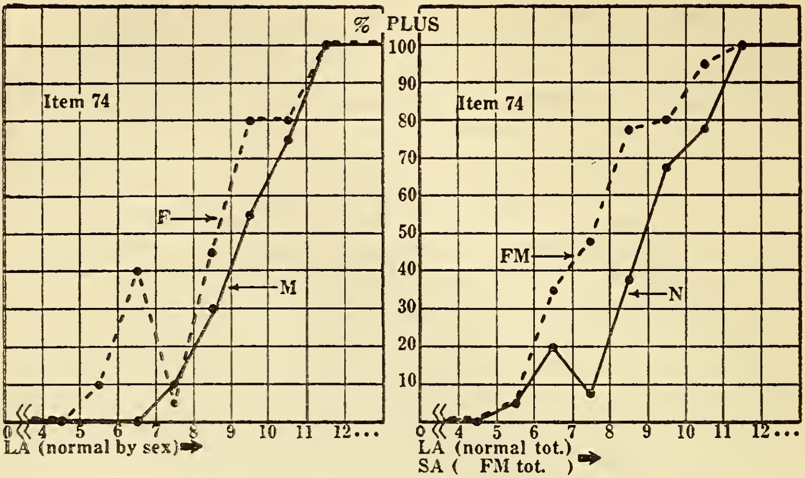


This item is a superior extension of Item 64, in which the entire bathing process is now accomplished without help except for washing and drying hair.

To satisfy the item the S prepares and tempers the tub, shower or other means of bathing; undresses; bathes without need of assistance; dries self without need of touching up. In short, the bath is routinely accomplished entirely without help except for the hair, which may be washed and dried by someone else independently of the bath itself or coincidentally with it.

The normative curves show smooth and rapid acceleration between the ninth and twelfth years except for unaccounted advance success by some girls at the seventh year (or lapse at the eighth year). The mean M-F difference is .90 years in favor of the girls, CR 1.17. The mean total norm is 8.85, SD 1.69.

The feeble-minded excel the normative S's at all significant SA versus LA intervals. The mean N-FM difference is 1.25 years, CR 2.34.



ITEM 74: *Bathes self unaided.*

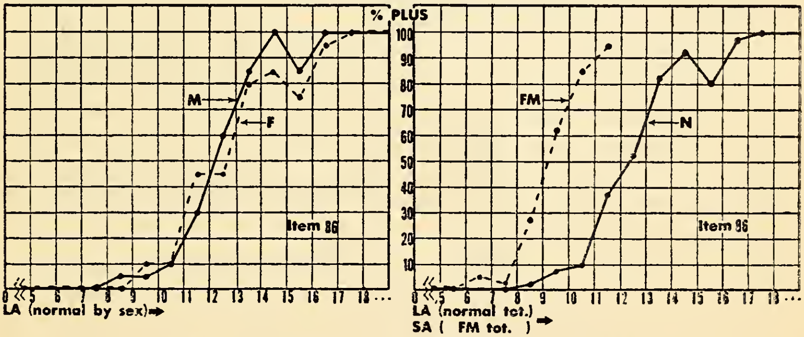
	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	9.30	9.30	1.28		N :	8.92	8.85	1.69	
F:	8.64	8.40	1.91		FM:	8.33	7.60	1.61	
D:		.90		1.17	D :		1.25		2.34

This item requires scoring judgment regarding the varieties of bathing conventions, media and routines. A dip in the river without benefit of soap seems a far cry from the complexities of a hot shower or Turkish bath. Privacy versus attendance at the bath is another consideration. Suffice it here to state somewhat dogmatically that when the maturational period is attained the minor vagaries of *modus operandi* seem readily accommodated. This has already been noted in previous items. More serious are the environmental restraints of parental or parent-surrogate solicitude, and of institutional regimentation, regarding safety and meticulous cleansing. Yet even these are actually or surreptitiously overcome when maturity in this performance becomes dominant. These comments apply with less force to Item 64 where attendance at the bath is expected. The comment for Item 50 regarding emptying and cleaning the bath receptacle and generally restoring the material situation to its original orderliness is pertinent here also; such conscientious habits certainly increase one's total competence but cannot readily be incorporated in particular items without introducing the variables of personality differences or specific indoctrination. Note that Table 10 shows only one normative and four feeble-minded +NO scores. Yet there is a standing rule that none of these FM S's should bathe alone or unsupervised (because of possible scalding or other risks). Here again those who can, do. Or, when restrictions are not necessary they tend to be unenforced. (For habit interference see p. 66.)

ITEM 86. (LA 12.38) *Exercises complete care of dress.*

This item is an inclusive summation for the totality of self-help in dressing and cleansing, plus additional details. At this stage the individual rarely requires assistance in any detail of personal toilet.

To satisfy the item the S bathes himself completely, including washing and drying the hair; pares his own nails (hands and feet); shaves himself if bearded; makes a proper selection of clothing according to the occasion and the weather; ties his own laces, neckties, ribbons or sashes; in short entirely looks after himself in cleanliness and dress except for occasional assistance in fastening inaccessible parts of the clothing and perhaps in preparing for specially formal occasions. Cosmetic makeup on the part of girls may be an added but not required detail. Advice may be sought regarding suitability of dress.



ITEM 86: *Exercises complete care of dress.*

	Med.	*Mean*	*SD*	*CR*
M:	**12.17**	**12.20**	**1.73**	
F:	**12.64**	**12.55**	**2.23**	
D:		**-.35**		**.37**

	Med.	*Mean*	*SD*	*CR*
N :	**12.33**	**12.38**	**2.00**	
FM:	**9.14**	**9.23***	**1.24***	
D :		**3.15**		**5.82**

***100% assumed at SA 12-13.**

Success on this item shows steady and rapid progression by normative LA intervals between the twelfth and sixteenth years except for a few emergent successes before the twelfth year and a lapse for both sexes at LA 14-15. The mean M-F difference is .35 years in favor of the boys, CR .37. The mean total norm is 12.38 years, SD 2.00. The absence of notable

SUMMARY of ITEM DATA

SELF-HELP DRESSING CATEGORY

(From Tables 2 and 9)

	Normative by sex						Normal vs Feeble-Minded					
Item	M	F	SD_m	SD_f	D	CR	N	FM	SD_n	SD_{fm}	D	CR
21	1.20	1.05	.82	.61	.15	.44	1.13	1.55	.73	—	—.42	—
37	2.20	1.90	.88	.71	.30	.79	2.05	1.78	.82	—	.27	—
40	2.75	2.45	.90	.99	.30	.67	2.60	3.00	.95	.65	—.40	1.52
42	3.10	2.60	1.10	.75	.50	1.14	2.85	2.45	.97	.51	.40	1.60
47	3.60	3.10	.87	.90	.50	1.19	3.35	3.05	.92	.96	.30	.98
50	4.30	3.35	1.56	.97	.95	1.56	3.83	4.05	1.38	.87	—.22	.59
52	5.05	4.25	1.66	1.10	.80	1.21	4.65	4.65	1.46	.86	0	—
54	5.35	4.25	1.50	.84	1.10	1.93	4.80	3.80	1.33	.96	1.00	2.66
64	6.65	5.80	1.91	1.41	.85	1.08	6.23	5.83	1.73	.81	.40	.92
65	7.35	6.15	1.46	2.18	1.20	1.37	6.75	6.45	1.95	1.79	.30	.49
70	8.80	8.10	1.75	1.00	.70	1.05	8.45	6.33	1.47	1.58	2.12	4.29
74	9.30	8.40	1.28	1.91	.90	1.17	8.85	7.60	1.69	1.61	1.25	2.34
86	12.20	12.55	1.73	2.23	—.35	.37	12.38	9.23*	2.00	1.24*	3.15	5.82

sex difference may surprise some students.

This is the first item thus far discussed in which the feeble-minded S's do not show complete final success in the SA group range available. (Item 76 is the first such item in the Scale as a whole. For discussion of statistical implications see comment p. 361.) In this instance if we assume complete success at SA 12-13 and thereafter in view of (1) the close approximation to one hundred per cent at SA 11-12, (2) the stable progression of the curve, and (3) the nature of the item, then the mean SA norm is 9.23 years, SD 1.24; and the mean N-FM difference is then 3.15 years in favor of the feeble-minded, CR 5.82. This would then be the largest amount of difference and also the largest CR found for any of the normative-feeble-minded comparisons. Actually the fragmentary data beyond SA 11-12 show 90 per cent passes at SA 12 (N = 15), 87.5 per cent at SA 13 (N = 7), 92.5 per cent at SA 14 (N = 6), 100 per cent at SA 15 (N = 4) and SA 16 (N = 5). Because of these incomplete data this item is omitted from Table 9-A.

Summary. The normative sex differences in this category are all in favor of the girls except Item 86. However, the differences are both numerically and relatively of small amount and low reliability. Item 54 reaches a CR of 1.93 and a mean difference of 1.10 years (one-quarter of its base). All other CR's are below 1.57 and the mean differences (except Item 50) below one-quarter of their bases. On Item 86 the difference is in favor of the boys but is of small amount and low statistical significance.

In the feeble-minded comparisons four items (54, 70, 74 and 86) have CR's of 2.66, 4.29, 2.34 and 5.82, respectively. All of these favor the feeble-minded subjects; Item 54 by a mean difference of 1.00 years (one-quarter of the base), Item 70 by 2.12 years (one-third of the base), Item 74 by 1.25 years (one-seventh of the base), and Item 86 by 3.15 years (one-third of the base). All other CR's in this category fall below 1.61 and the amounts of difference are negligible. Item 86 shows the largest mean difference and the highest CR of all the normative-feeble-minded comparisons for the entire Scale, but this result is rendered somewhat uncertain by incomplete data at the upper extremity of the SA ogive.

It may be helpful to comment further on the variations in sex in respect to these items. In many details of dressing, including specially care of the hair, the performances seem *a priori* to be somewhat more difficult for girls than for boys. However, this is somewhat offset by apparently greater incentive among girls and the greater premium they apparently set upon dressing. There is also a somewhat closer relation (in dressing) of girls to their mothers, or to their elders of the same sex, which tends toward a greater emphasis on dressing and therefore tends to develop greater attention to these performances. In the final stages this somewhat greater variation in the dressing process among girls is offset in some degree among boys by the practice of shaving and the special difficulties of tying neckties, although this in turn is at least equalled on the part of girls in the details of hair dressing and the more or less complicated use of ribbons and later of cosmetic makeup.

Some comment may also be pertinent in regard to the environmental standards of dressing which on the whole tend to be somewhat reduced for boys, as well as in the lower occupational classes and the simpler environments. At lower cultural levels the standards of dressing are somewhat more simple or the modes of dressing less refined, so that in these respects it is not surprising if S's in inferior or primitive environments may seem to perform these items more easily. Actually, in gathering these data few difficulties were encountered in regard to these variables within the environmental sample employed. However, in other environments and for other samples these difficulties should be seriously investigated by the accumulation of pertinent systematic data. The apprehensions of the examiner in this regard will be more evident in *a priori* expectation than experienced in fact. The arm-chair fine points of distinction so easily argued for all items of the Scale seem to dissipate under careful study.

LOCOMOTION

> *The census-taker encountered an unschooled mother and asked for the ages of her five children. She declared she couldn't remember. On further urging, she said, "Well, there's one lap child, one creeper, one porch child, one yard child and one school child."* — Willard Olson

The title for this category is somewhat misleading, suggesting as it does (at least to psychologists) the motor aspect of getting about, whereas our major concern is with the social responsibilities associated therewith. It might more appropriately have been termed "social locomotion" and was indeed originally called "social movements."

Locomotor activity reaches its primary peak in body mechanics by about the fifth year of life (running, skipping, jumping), but the social accompaniments of locomotion increase with the range of expression as individual maturity elaborates use and need. This category, therefore, covers a wide span of years and is fairly consistent in its sequential evolution. The individual not only expresses increasing degrees of independence and responsibility in respect to his geographical horizons, but also expands his social effectiveness through this ever-widening extension of his peregrinations. Note particularly that the motor aspects of each item generally precede the social aspects.

In the case of physically handicapped or deteriorated subjects (crippled, enfeebled, blind and to some extent the deaf) the motor aspect of the item as a precondition of success may not be ignored in fact but may be allowed for in evaluation. "Walks" in such cases means "goes" in some way, perhaps with use of cane, crutch, wheelchair, guide, dog or attendant. The degree of dependence upon such aids must be reckoned with if without them the person is rendered immobile or unsafely mobile. This presents difficulties of scoring that cannot clearly be anticipated in all such subjects but must be weighed with objective candor by the examiner according to the circumstances obtaining. Nor should the examiner be too subjectively optimistic in inferring that if the S could walk with physical ease he would assuredly meet the *social* requirements of these items. Plus NO scoring is generally inappropriate in most such instances but may be admissible for some. Plus F scoring is permissible (if otherwise appropriate) if the incapacity is temporary (Chapter 7).

In the case of mentally and socially handicapped or deteriorated subjects (e.g., mentally deficient, psychopathic, epileptic, senile or infirm, socially maladjusted, delinquent and criminal) the social aspect of these items looms larger than the motor requirements. These performances place a premium on discretion and judgment, or freedom from unfortunate consequences of their exercise. This introduces a difficulty of estimating the kind and degree of mental, social and moral responsibility that must be reckoned with and the conventions or proprieties to be exacted without becoming puritanically moralistic. Usually the examiner will have no difficulty in resolving these components, but he should not become too discouraged if some such scoring is unavoidably dubious. Plus NO scoring may be applicable to the more advanced items but should be skeptically objective. Plus F scoring may also apply to the more advanced items provided the loss of performance is only temporary and that the restraints to performance are not imposed because of difficulties resulting from such performances.

In the case of institutionally confined or otherwise regimented environments, plus F and plus NO scoring may be necessary for some items. In such situations candid objective regard for the above considerations is essential to sound scoring. Also in some environments, and in certain social strata, questions regarding much or little occasion for exercise of the item, as well as custom, fashion, incentive, and means will call for discriminating judgment. These eventualities are so varied, yet ordinarily infrequent, that to provide for them here would be at best only confusing even if not otherwise impracticable.

It may be noted parenthetically that such *modes* of locomotion as running, skipping and jumping while logically contributory to effective movement did not readily lend themselves to use in this scale because of the varieties of conditions and individual differences involved. Likewise, except as included in occupation and socialization items, no emphasis is placed on various *means* of locomotion (such as scooters, skates, bicycles, automobiles, trains, ships, airplanes) because of their variable universality for personal use.

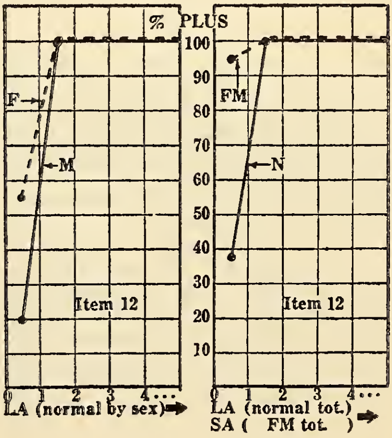
The 10 items of this category extend from years 0-I to XVIII-XX (1 at 0, 3 at I, and 1 each at III, IV, V, IX, XV-XVIII, and XVIII-XX). Simple ambulation is apparent in the second item (Item 18) and is a difficult phase in the fourth and fifth (Items 32 and 45). The other items have an essentially social rather than ambulatory significance. The items are serially sequential for the category as a whole.

ITEM 12. (LA .63) *Moves about on floor.*

Certain items in the SHG category constitute a premonitory extension of the environment through rolling over, reaching and grasping, sitting, and the like. These developments enable the S not only to move about within his immediate environment, but also to explore and manipulate that environment. This increases his opportunities for self-expression and own dependence, but also introduces certain hazards to himself or to the environment in so doing. Consequently, the child's locomotor activities give his elders perhaps as much concern as satisfaction, since locomobility produces risks as well as advantages.

This performance shows rapid normative progression in the later first and early second years of life. The mean M-F difference is .35 years in favor of the normative girls. The mean total norm is .63 years.

Nearly all the feeble-minded S's succeed at SA 0-1, and all thereafter. The mean SA norm is .05 years. The mean N-FM difference (ignoring mean LA difference) is .58 years in favor of the feeble-minded.



ITEM 12: *Moves about on floor.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	.88	.80	-		N :	.70	.63	-	
F:	.41	.45	-		FM:	.03	.05	-	
D:		.35		-	D :		.58		-

In the stage of locomotion represented by this item the S gets about on the floor by creeping, crawling, rolling over, and so on. He may be more or less guarded or watched in his movements in order to protect him from environmental hazards. In this early stage, therefore, the item is satisfied if in moving about on the floor the S does not become involved in appreciable difficulties. This is witnessed by the extent to which more responsible persons may "keep an eye on him." The motor performance is only a precondition of the social consequences.

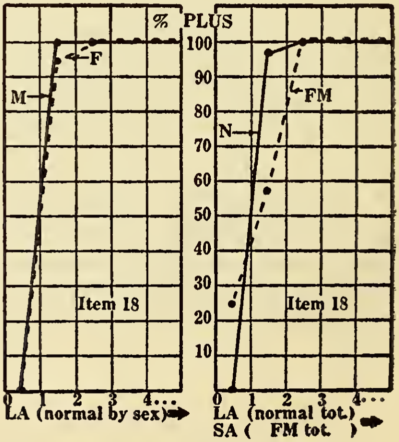
ITEM 18. (LA 1.03) *Walks about room unattended.*

This is an extension of Item 12 in both motor and social directions. Walking as opposed to simple "moving" greatly extends the range, speed and amount of getting about.

The S now walks about the room instead of creeping, rolling or crawling, and is unattended except for occasional admonition or casual oversight. More important than the motor activity itself is the increased personal responsibility that accompanies it. Consequently, in spite of greater activity, the necessary watchfulness is little more than for Item 12. In other words, the S materially enlarges his environmental movements (as represented by a single room) without increasing hazard; or as the possible hazards are increased his greater maturity enables him to cope with them more independently.

This accomplishment shows substantially total normative mastery in the second year of life. The mean M-F difference is .05 years in favor of the boys. The mean total norm is 1.03 years.

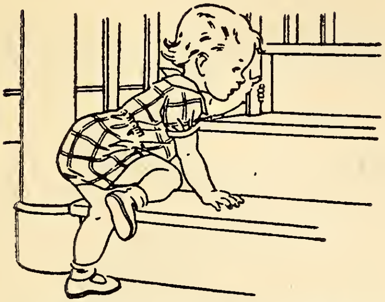
The normative S's excel the feeble-minded by .15 years, in spite of the latter's life age advantage. This emphasizes the social content of the item since all these feeble-minded subjects are physically ambulatory but not socially very responsible at this SA period.



ITEM 18: *Walks about room unattended.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	1.00	1.00	-		N :	1.01	1.03	-	
F:	1.03	1.05	-		FM:	1.27	1.18	.75	
D:		-.05		-	D :		-.15		-

ITEM 29. (LA 1.63) *Goes about house or yard.*

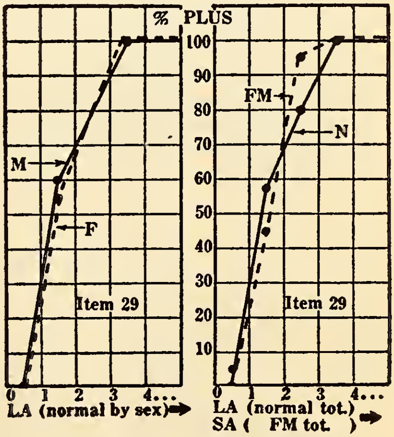


This is an extension of Item 18 in that the environment is extended from a single room (at a time) to other rooms of the house and to certain parts of the yard.

"House" here means a single floor of any familiar abode where some responsible person is within sight or call, and where the oversight required as to the S's whereabouts is little more than for a single room. This "range" may be extended to a yard which is something more than a play-pen, whether or not enclosed, but again where some responsible person is within sight or hearing. In either house or yard certain areas or "deadlines" may be indicated so that the S may be forbidden to enter certain rooms or to go beyond certain limits in an unfenced yard, or off the porch. If the S uses the yard, he need not be required to go up and down steps alone (see Items 32 and 45), but may be taken to or from the yard. If he goes about the house or porch, he may be protected in his movements by outside doors or porch gates. Aside from these limitations, the S is relatively free to move about and the exercise of this freedom requires only intermittent watching or checking up, rather than continued surveillance or concern as to his probable whereabouts and actions.

The normative maturation for this item occurs between the second and fourth years of life. The mean M-F difference is .05 years in favor of the boys, CR .14. The mean total norm is 1.63 years, SD .73.

The normative and feeble-minded performances are closely similar in LA versus SA groups. The mean N-FM difference is .08 years in favor of the feeble-minded, CR .37.



ITEM 29: *Goes about house or yard.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	1.33	1.60	.75		N :	1.37	1.63	.73	
F:	1.41	1.65	.74		FM:	1.60	1.55	.60	
D:		-.05		.14	D :		.08		.37

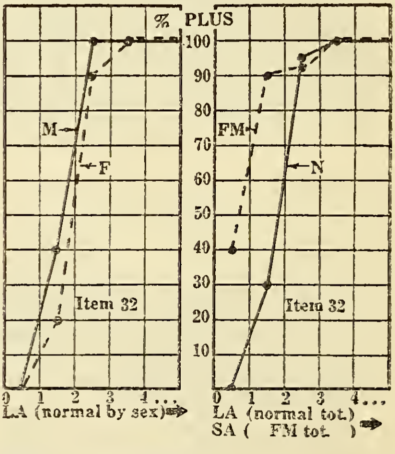
ITEM 32. (LA 1.75) *Walks upstairs unassisted.*

Walking upstairs is both more difficult and more hazardous than the preceding locomotion items. Coordination and balance are at a premium, and if the S should fall there is genuine danger of bodily injury. In the early stages the child may creep step by step, using arms and knees instead of treading the stairs. Usually this act is so precarious as to require close watching. Following this the S may walk upstairs holding the hand of some person and usually taking two steps to a tread. In these protected stages the child may be guarded from falling even if no actual help is given. We have not employed these early stages because of the wide individual differences in manner of doing so and because other phases of locomotion of substantially similar difficulty could be more readily employed.

The item shows rapid normative maturation in the third year of life. The mean M-F difference is .30 years in favor of the boys. The mean total norm is 1.75 years, SD .45.

The feeble-minded S's show a mean advantage of .97 years over the normal S's, CR 4.75.

The motor aspect of this item is taken as a partial guarantee of its social aspect. This appears to account for the advantage reflected in the feeble-minded S's.



ITEM 32: *Walks upstairs unassisted.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	1.67	1.60	–		N :	1.81	1.75	.45	
F:	1.93	1.90	.46		FM:	.70	.78	.77	
D:		-.30		-	D :		.97		4.75

This item requires that the S go upstairs without help and without watchful protection. It also requires that the S walk, rather than creep or go on "all fours," since such maneuvers usually require oversight. However, if the S habitually creeps or otherwise goes upstairs with consistent safety and without supervision, plus scoring may be allowed. He may hold to the banister or the wall, but not to a person, and may take two steps to a tread. The significance of the item for our purposes is that the S receives no assistance in going upstairs, not only from the motor standpoint, but more particularly with reference to the responsibilities involved as to safety

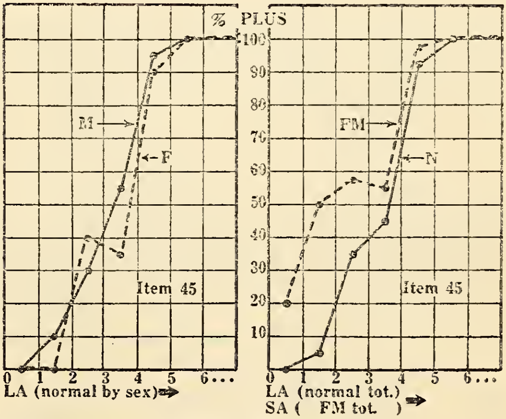
and also as to the increasing range of the environment and the consequent reduction of supervision in that environment. It is to be assumed that the stairs are of appreciable length, say a minimum of five or ten treads (for porch stairs). In the case of one-story abodes, going up and down porch steps alone may be taken as equivalent success. Here the number of steps would be smaller, but the hazards presumably somewhat greater than from first to second floor.

ITEM 45. (LA 3.23) *Walks downstairs one step per tread.*

Walking downstairs is both more difficult and more hazardous than walking upstairs. The motor difficulty is increased and the social competence assured by the requirement that the S employ one step per tread.

This performance matures normatively for all but a few subjects between the third and fifth years of life. The mean M-F difference is .25 years in favor of the boys, CR .50. The mean total norm is 3.23 years, SD 1.07.

The feeble-minded S's show an advantage of 1.03 years, CR 2.24, over the normative S's in SA versus LA intervals. The delay in feeble-minded performance at SA 3-4 is not readily explainable.



ITEM 45: *Walks downstairs one step per tread.*

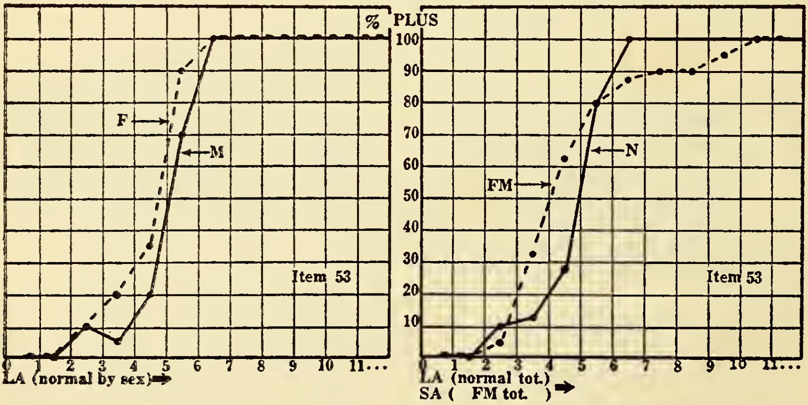
	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	3.30	3.10	1.05		N :	3.61	3.23	1.07	
F:	3.77	3.35	1.07		FM:	1.50	2.20	1.70	
D:		-.25		.50	D :		1.03		2.24

The item is satisfied if the S freely walks downstairs without help and without protection taking one step per tread. If the S habitually takes two steps per tread with consistent safety not requiring oversight, plus scoring may not be allowed. (Two steps per tread appears to be an intermediate stage for this item which did not yield satisfactory scoring on the criterion of habitual performance over a sufficiently protracted time period.) He may hold to the banister or wall, but not to a person.

As for other items, the performances on this item and Item 32 should be accustomed rather than infrequent but may be confined to familiar environments. We may note again that going downstairs two steps per tread seldom is accompanied by independent assurance of safety. Running or jumping in this performance (not to mention sliding down banisters) are of course later embellishments.

ITEM 53. (LA 4.70) *Goes about neighborhood unattended.*

This is an extension of Item 29, with responsibility extended to larger and more varied areas. Success on this item reduces the need for immediate supervision by elders and expands both the geographic limits and the social variables within which the S is responsible for his own movements.



ITEM 53: *Goes about neighborhood unattended.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	5.10	4.95	1.03		N :	4.93	4.70	1.09	
F:	4.77	4.45	1.08		FM:	4.08	4.58	1.95	
D:		.50		1.00	D :		.12		.23

Performance on this item shows fairly rapid onset during the fourth to seventh years of life for the normative S's. The mean M-F difference is .50 years in favor of the girls, CR 1.00. The mean total norm is 4.70 years, SD 1.09.

Maturation in this item for the feeble-minded S's in SA groups shows earlier onset but individually delayed completion (with consequently larger SD) than for the normal S's. The mean N-FM difference is .12 years in favor of the feeble-minded, CR .23. This result may be influenced positively by the more advanced life ages of the feeble-minded and negatively by the regimented (institutional) restraints due to the social hazards involved.

For purposes of scoring, the range of locomotion may be restricted as to areas or deadlines; also the S receives credit even though he might be required to be accountable for his probable whereabouts or activities. Thus, the S might be warned against crossing streets or going in particular directions because of the dangers involved, but would be relatively free from supervision within a limited area outside his own yard. The actual distances traversed need not be great, but require some interpretation in relation to the nature of the environment. Thus, in a city or large town this item is satisfied if the S goes about within the area of his own block, whereas in more open districts the reasonable limits might be farther removed. In either case, the area is to be thought of as such that the S is within relatively easy access or "on call" and presumably would not be removed from supervision for long or indefinite periods.

This item, like the other locomotion items, is of course somewhat influenced by the conduct or disposition of the S, since responsibilities in these directions might serve to limit successful performance. Throughout the Scale we are not concerned with conduct directly, but if conduct limits the S's responsibility as one aspect of competence, this is presumed to be reflected in the degree of independence he might exercise or be allowed in particular activities. Similarly, specific dangers in a particular environment should be evaluated at the discretion of the examiner.

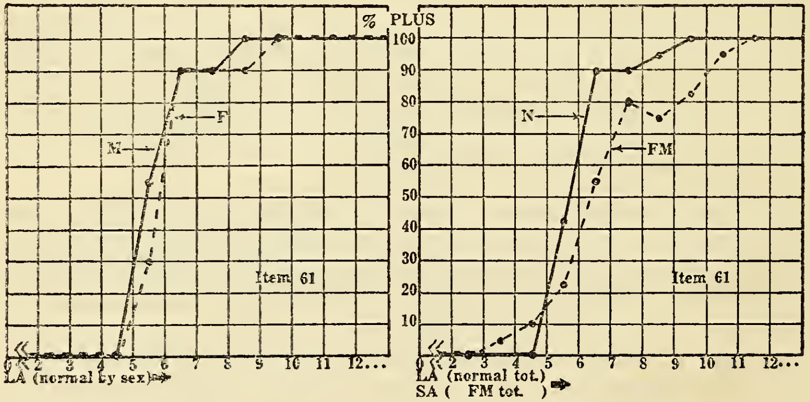
Note that whereas boys might be expected to excel girls in this item the reverse is true (by a small and statistically unreliable difference). This suggests that whereas boys are more venturesome, their initiative may outrun their social discretion, and *vice versa* for the girls.

In institutional environments "neighborhood" must be defined locally according to circumstances and should constitute a practical equivalent to its extra-institutional concept in terms of the first increase of "bounds" beyond Item 29 yet prior to Item 61. Note also that institutional areas of whatever extent presumably afford continuous general as well as special oversight of greater or less degree. However, the regimented restraints of institutional environments should not be too superficially disparaged by the unsophisticated examiner, for institutional confinement is evidence *per se* of difficulties encountered in the unrestrained exercise of personal freedom. Hence both plus F and plus NO scoring while frequently applicable should be employed with sophisticated candor.

ITEM 61. (LA 5.83) *Goes to school unattended.*

This item is an obvious extension of Item 53 and carries similar implications but larger scope. "School" here denotes any relatively specific or familiar place or area recurrently visited on the S's own responsibility outside the immediate neighborhood but less than "home town" (see Item 77).

The item is satisfied if the S goes either alone or with friends to particular near-distant familiar points without someone having direct charge of him (in the sense of being responsible for him). It is presumed that the S will go appreciably outside the limits indicated in Item 53 but not so far as in Item 77, and that he either does in fact cross streets and cope with other (often unforeseen) situations successfully, or has in comparable circumstances definitely demonstrated his ability for doing so. There is the further assumption as in all locomotion items that the S's conduct is such as to anticipate no unhappy consequences.



ITEM 61: *Goes to school unattended.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	5.41	5.65	.86		N :	5.66	5.83	.98	
F:	5.83	6.00	1.06		FM:	6.35	6.75	2.03	
D:		-.35		.76	D :		-.92		1.78

The normative maturation on this item is rapid in the sixth and seventh years of life. The individual delays in success may represent parental solicitude or individual differences in environment, conduct or personality. The mean M-F difference is .35 years in favor of the boys, CR .76; this is small in amount as well as low in statistical reliability, suggesting that the hazards for girls are not so great as might at first be assumed. (Note that this is a reversal of the sex trend for Item 53.) The mean total norm is 5.83 years, SD .98.

The normative S's excel the feeble-minded by a mean N-FM difference of .92 years, CR 1.78. The relatively large SD for the feeble-minded S's reflects chiefly individual differences in initiative and responsibility. Among the feeble-minded of more advanced mental age the social hazards are increased rather than decreased because greater venturesomeness is not accompanied by correspondingly greater judgment. Note the reversal of the N-FM difference for Item 53. This may in part be due to the interpretation of "school" in the institutional environment.

If the S goes to school (or equivalent point) by some public conveyance, it is assumed that he is responsible for his own actions from the time he leaves the house (to reach the conveyance) until he returns, subject of course to such normal safeguards as might be provided for children in general. The item therefore involves going back and forth more or less frequently to some familiar place relatively apart from the home environment and relatively independent of supervision.

ITEM 77. (LA 9.43) *Goes about home town freely.*

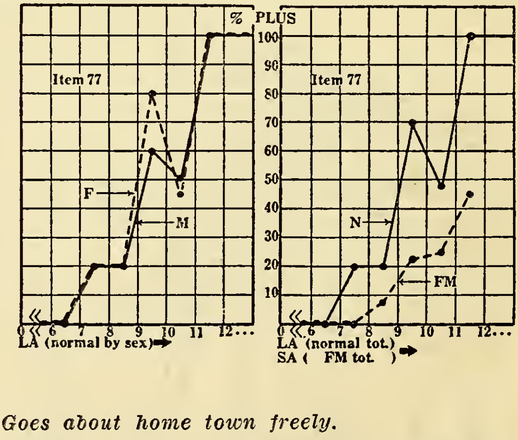
This item is intermediate between Items 61 and 92. It involves an extension of the environment to rather remote points of the home district, that is, beyond the familiar daily surroundings and to other than specific points.

Such minor excursions may be made either alone or with friends, but the S is free from both immediate and remote supervision. However, he may still be somewhat restricted as to areas or deadlines, but these are such as to permit him to go beyond easy call, and the time involved in the movements is extended to perhaps a half-day or longer. There is also an assumption that the parents or others who may be responsible for the S do not feel unduly concerned for his safety in the sense of imposing checks on his movements.

The normative standardization shows fairly smooth progression except for a marked lapse *for both sexes* at LA 10-11. The mean M-F difference is .15 years in favor of the girls, CR .21. The mean total norm is 9.43 years, SD 1.55. The distributions are "awkward" (p. 363) for both sexes and for the total N, with correspondingly dubious medians.

The feeble-minded S's show a consistent progression in SA groups up to SA 11-12 which is the highest SA group for which at least ten subjects of each sex were available in the institutional population from which these subjects were obtained. (This is the first item thus far discussed which does not approximate maturational completion for the feeble-minded S's.) Hence a comparison of either mean or median N-FM differences is not possible. The average decile difference (interpolated from unsmoothed data) from 0 to 40 percentile inclusive is about 1.5 years in favor of the normal S's. However, the curves are divergent rather than parallel with an average decile *increment* of difference of about .4 years (estimated from the divergent slopes of the curves). The comparative 40-percentile difference is about 2.3 years (disregarding the normative lapse at LA 10-11). The estimated median difference is 2.75 years. The reliabilities of these differences (based on approximate slopes) cannot be satisfactorialy estimated.

It is interesting to compare the fragmentary data (see p. 73) on this item beyond SA 11-12 with the corresponding data for Item 86 (p. 129). These data for Item 77 are as follows: 92.5 per cent passes at SA 12 (N = 15), 92.5 per cent at SA 13 (S = 7), 83 per cent at SA 14 (N = 6), 100 per cent at SA 15 (N = 4) and at SA 16 (N = 5). However, because of environmental restrictions many of these upper plus scores are based on "+ NO" and "+ F" performances within the range of otherwise "+" scores (as was also the case below SA 12 for all FM S's except one). When these data are compared with those for Item 86 the curves become fairly comparable at SA 12 and beyond. However, the statistical calculations for Item 77 are unwarranted in view of the smaller number of S's who represent superior attainment.



ITEM 77: *Goes about home town freely.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	9.88?	9.50	1.54		N :	10.01?	9.43	1.55	
F:	9.98?	9.35	1.56		FM:	-	-	-	
D:		.15		.21	D :		-		-

The actual distance traversed in satisfying this item may be relatively great or small, dependent upon the complexity of the environment. Thus in a large city, the item would be satisfied if the S goes about only certain sections of his home town rather than the entire city, whereas in the rural district the S may go about the remote neighborhood. In either case he might even be accompanied to "town," but once there would be on his own responsibility. The word "town" is therefore to be construed as an extension of the environment to include unfamiliar places not too distant necessarily in point of mileage, but remote in the sense of removing him from the usual early surroundings and introducing him to non-specific yet not too strange areas and to unforeseen but not too specific contingencies.

The absence of appreciable sex difference on this and later locomotion items is noteworthy considering the presumptively greater hazards for girls approaching and during adolescence. So also is the lapse in performance for both sexes on this item at LA 10-11. That this (and minor lapses on other items) is not due to significant differences in native ability in the successive LA samples is evident from lack of consistent lapses on other items for adjacent LA groups.

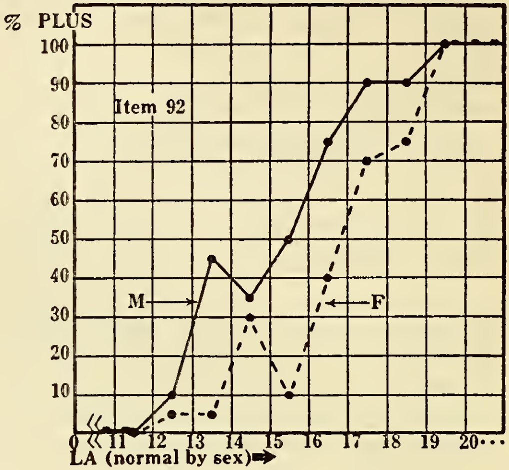
ITEM 92. (LA 15.85) *Goes to nearby places alone.*

This item is intermediate between Items 77 and 96. It reveals more extended distances travelled, a lesser degree of familiarity with the remote environment, a longer time period (for distance traversed), more complicated arrangements to be made, greater responsibility involved, broader freedom of action, and greater resourcefulness in meeting contingencies. Again dependable conduct must be construed as influencing the scoring since limitations in these regards will naturally reduce the competence with which the item is fulfilled.

To "pass" the item the S more or less frequently and readily goes beyond the limits of his "home town" (as defined in Item 77) as occasion warrants. It is rather difficult to set limits as to the distances travelled, since these will be determined in part by the complexity of the environment and the modes of transportation available. Thus, going to strange or remote portions of a large city may be construed as equivalent to going to a somewhat distant but familiar town, or to one perhaps nearer but less familiar or requiring a greater degree of resourcefulness. While on such "trips" the S is responsible for arrangements and contingencies, not merely following explicit directions or going to and from familiar points. If accompanied he is still responsible for his own actions. The occasions may be major or minor, and the S may or may not "have permission" or give notice of his intentions. In short, his social movements are relatively unhampered, but their scope is still mildly restricted.

The normative S's show fairly rapid and consistent maturation. The boys excel the girls; the former reveal a maturational lapse at LA 14 and the latter at 15. The mean M-F difference is 1.60 years in favor of the boys, CR 1.65. The mean total norm is 15.85 years, SD 2.20.

The feeble-minded subjects show no successes on this item up to SA 11-12, the upper limit of grouped subjects available. Hence the normative comparison is not possible. Some beyond SA 11-12 do succeed or obtain plus F or plus NO scores, but the data are too meager for presentation. Conceivably, the feeble-minded at large get into more or less trouble when performing this item.



ITEM 92: *Goes to nearby places alone.*

	Med.	*Mean*	*SD*	*CR*
M:	15.50	15.05	2.14	
F:	16.83	16.65	1.96	
D:		-1.60		1.65
Tot.:	16.23	15.85	2.20	

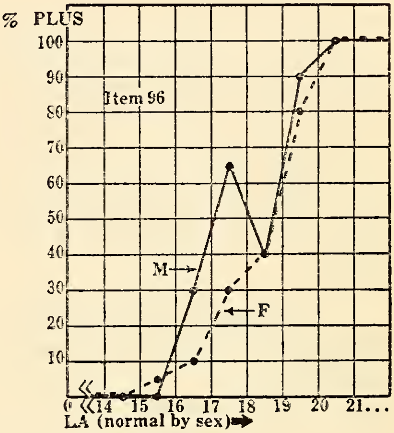
ITEM 96. (LA 18.05) *Goes to distant points alone.*

This item represents the final stage in locomotion and is to be considered as revealing substantially complete responsibility in going nearly anywhere without limitation. In other words, the geographical and social limits contained in Item 92 are extended to almost any environment with complete responsibility. Presumably the arrangements required, the resourcefulness in meeting dangers and other details are now beyond need of any supervision.

In this item the movements may be to specific or non-specific points. They may involve greater distance, staying overnight, loss of ready contact with the home environment, broader resourcefulness, more complex arrangements, more stable conduct, heavier expenditures, and so on. The item is most easily defined as requiring that the S be unrestricted in his movements except for the ordinary considerations and courtesies of family or friendly living. In the case of girls a companion or chaperone may accompany the S (as also on Item 92), as a convention or to protect reputation rather than to assure safety, but in recent years such discretion has been appreciably relaxed in the U.S. environment.

The normative progression rises rapidly between LA's 16 and 20 inclusive with a lapse for the boys at LA 18 (or anticipatory peak at LA 17). The mean M-F difference is .60 years in favor of the boys, CR .88. The mean total norm is 18.05 years, SD 1.47.

Comment on the feeble-minded subjects is the same as for Item 92.



ITEM 96: *Goes to distant points alone.*

	Med.	*Mean*	*SD*	*CR*
M:	17.96 ?	17.75	1.52	
F:	18.75	18.35	1.36	
D:		-.60		.88
Tot.:	18.72	18.05	1.47	

Summary. The items in this category afford an example of the manner in which a variety of performances reveal a progressive extension of substantially the same area of behavior. The expanding horizon, from the point of view of *social* getting about, demands increasing responsibility in personal conduct, conformable behavior, modes of transportation, expenditures, resourcefulness, cautions, and so on. As these items increase in difficulty their relation to other items of the Scale is readily apparent. The category extends from early infancy to early adulthood and in itself so comprehensively represents successive degrees of social competence that it might almost be used alone as a brief method of measuring social maturation. In general this category includes one of the most obvious and satisfactory series of items of the Scale as a whole, reflecting as it does more than other categories the increasing complexity in extent of social performance and the involvement of other forms of social competence.

The particular items which have been placed in this category are designed to emphasize their distinctive value for separate appraisal. But prerequisite success on certain stages of locomotion is implicitly assumed for many item performances in other categories.

There is some presumption, regarding which we have no systematic evidence, that there might be some difference in locomotion items in relation to social class or according to the general environment as rural or urban.

This category readily illustrates the interview principle of proceeding from the general to the particular. From "To what extent does the S go about" to "Where does he go" and "What or how does he manage" and then to specific details is readily obvious.

It might at first be supposed that sex differences would affect performance on these items. But the largest normative sex difference is only 1.60 years (Item 92). This D is only one-tenth of its base, and its CR is only 1.65. All other mean M-F differences are below .61 years, and all other CR's are below 1.01. The SD's of the sex distributions are also small and seem not to be seriously affected by the onset of adolescence for either sex.

The feeble-minded comparisons show only Item 32 with high CR (4.75). The mean N-FM difference for this item is only .97 years (in favor of the feeble-minded) but this is numerically more than its base (.78 years). Item 45 shows a mean difference of 1.03 years (half of its base), in favor of the feeble-minded, with CR 2.24. All other N-FM comparisons show numerically low and statistically unreliable differences. Three of them (Items 77, 92 and 96) do not yield central tendencies for the feeble-minded subjects because of insufficient subjects beyond SA 11-12 and the relative difficulties of these items for FM S's. Item 77 yields an estimated median difference of 2.75 years (one quarter of its base) in favor of the normal subjects with inferentially high reliability.

The marked and progressively divergent comparative retardation for the feeble-minded subjects on the more advanced locomotion items is only partly due to institutional restraint. As a foster parent the institution imposes such restrictions on the

SUMMARY of ITEM DATA

LOCOMOTION CATEGORY

(From Tables 2 and 9)

	Normative by sex						Normal vs Feeble-Minded					
Item	M	F	SD_m	SD_f	D	CR	N	FM	SD_n	SD_{fm}	D	CR
12	.80	.45	—	—	.35	—	.63	.05	—	—	.58	—
18	1.00	1.05	—	—	—.05	—	1.03	1.18	—	.75	—.15	—
20	1.60	1.65	.75	.74	—.05	.14	1.63	1.55	.73	.60	.08	.37
32	1.60	1.90	—	.46	—.30	—	1.75	.78	.45	.77	.97	4.75
45	3.10	3.35	1.05	1.07	—.25	.50	3.23	2.20	1.07	1.70	1.03	2.24
53	4.95	4.45	1.03	1.08	.50	1.00	4.70	4.58	1.09	1.95	.12	.23
61	5.65	6.00	.86	1.06	—.35	.76	5.83	6.75	.98	2.03	—.92	1.78
77	9.50	9.35	1.54	1.56	.15	.21	9.43	—	1.55	—	—	—
92	15.05	16.65	2.14	1.96	—1.60	1.65	15.85	—	2.20	—	—	—
96	17.75	18.35	1.52	1.36	—.60	.88	18.05	—	1.47	—	—	—

presumption that *because of the limited social discretion* certain degrees of locomotion have not previously been performed with habitual success or presumably now would not be successfully performed if regimentation were not imposed.

Note that *some* (institutionalized) feeble-minded S's pass each item, and the number (proportion) increases consistently with SA progression. This indicates that *environmental restraint becomes relaxed when performance warrants*, and this principle applies to all items of the Scale. Moreover, "elopement" from the institution is quite simple (although of course by various means discouraged), and is indeed successfully accomplished in a certain number of borderline cases. The events usually experienced on such absences only confirm the need for restrictions on such movements. Indeed, the general willingness with which such restrictions are ordinarily accepted by the feeble-minded is one significant indication of the mental deficiency. Hence plus F and plus NO scoring should be employed skeptically and objectively with handicapped S's not only in this category but in others where like considerations obtain.

The actual NO and F scores are found in Table 10. There are few such scores for the normative S's on any item, and few for the feeble-minded on the lower items. Beyond Item 45 the number of +NO and −NO scores increase and then decrease (with a few +F scores on Item 61). Items 61 and 77 show the largest number of NO scores, and these occur in the upper SA group. Many of them occur within the range of otherwise minus scores. Hence environmental restraint, while present, has not seriously affected these results.

Two items in the Self-Direction category, namely Item 93 (Goes out unsupervised daytime) and Item 99 (Goes out nights unrestricted), are closely related to the Locomotion category. Other Self-Direction items, such as Item 94 (Has own spending money), Item 101 (Assumes personal responsibility), and Item 98 (Has a job or continues schooling) have other relations to Locomotion. Such correlation of items in general, and the sequences of items across categories, already has been or will be clarified elsewhere.

OCCUPATION

So little makes him happy when he's young;
A dog, a sled, a ball and bat, a gun,
A game to play or e'en a race to run.
But youth has vanished as a tale that's
told;
He thrills not now, save in the quest of
gold;
So little makes him happy when he's old. —The Kalends

For most people social competence means the degree of occupational activity or the kind of productive work in which a person is typically engaged. This is usually evaluated in terms of useful or gainful employment. But we have already observed that total social competence also involves the extent to which the individual looks after his immediate personal needs, and moves about in his social and geographical environment; we shall see later how social competence also includes other kinds of activity.

Successful use of one's time at any age is clearly related to other aspects of social maturation since these are inevitably involved in such pursuits. Thus, in the successive stages of occupational activity, we observe that self-help, locomotion, self-direction, communication and social participation are intimately interwoven, and without their harmonious coordination the successful expansion of occupational activities would be seriously restricted.

Occupational engrossments thus broadly conceived reveal a genetic evolution, such as (1) concentration on playful activity in infancy, (2) helping at minor tasks in early childhood, (3) engaging in exploratory creative pursuits in early adolescence, (4) gainfully (perhaps sporadically) working for others in late adolescence, (5) continuous productive employment in the adult years, and (6) finally the employment or supervision of others. In treating this category, therefore, we are concerned not merely with useful work, but with all the ontogenetic stages of vocational engagements, including prevocational and avocational absorption. Moreover, the mastery of scholastic and manual arts in the late grammar grades may be taken as equivalent to the novice levels of gainful work, while attendance at high school and college may substitute for apprentice or junior levels of skilled trades, business, the arts and professions. Similarly, time devoted to hobbies constitutes recreational occupation which corresponds to, or may even become, useful productivity or gainful employment.

For present purposes we must not be misled by the resulting income or prestige alone. Nor dare we become too involved in the details of occupational skills or the complexities of business and professional work. We must avoid also the adventitious nature of employment as reflected in personal, economic or industrial contingencies.

Our principal concern here, as in other categories and items, is with the extent to which occupational pursuits reflect personal independence, individual responsibility, social adjustment, specific usefulness or general self-sufficiency. Some forms of work involve a high degree of self-direction and resourcefulness but relatively little skill, whereas in other work skill may be at a premium and responsibility at a minimum. Likewise some relatively simple occupations may yield large returns in satisfaction, fame or fortune, while others more complex may command few such emoluments. Not only skill, effort, output and remuneration, but also related conduct, amount of supervision required, degree of responsibility involved, resourcefulness, adaptation, educational accompaniments, and the like must be considered. So conceived, this category extends throughout the entire range of life age from early infancy to late adulthood, and evolves from childish play to the highly skilled arts and professions, or from simple creative interests to expert trades, manufacture and commerce.

The 22 items in this category extend from the first year to the superior adult reaches of the Scale. They are rather evenly distributed except that seven items are above the average adult score (XXV+). There are 3 items at Year I, 2 at II and at VIII, and 1 each at O, III, IV, V, X, XI, XII-XV, and XVIII-XX. Some serial groupings are apparent such as self-occupation (Items 7, 19, 22, 36, 43, 55, 57, 107), helpful tasks (Items 24, 48, 72, 89), self-initiated work (Items 71, 80, 82, 108, 116), progressive levels of adult productivity (Items 98, 106, 111, 113, 114).

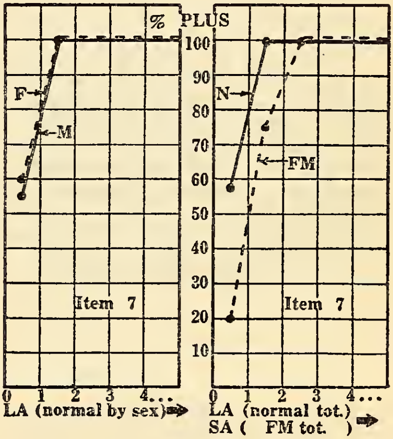
ITEM 7. (LA .43) *Occupies self unattended.*

An early stage of occupational activity is seen when the child begins to amuse himself. This practicable self-sufficiency is found in those brief periods of absorbed attention when the child's interest is stimulated and held by the exploitation of simple objects. When so engaged, the child is active rather than passive, and exercises practical interest in the manipulation of simple objects and the exploration of their uses or properties. He does so during what are for him extended periods of time, say a quarter hour or longer, without need of attention or assistance. In other words, the child can be left to himself for brief periods during which he is not demanding attention, but is looking after his spontaneous desire to be actively engaged at something.

The item is satisfied if the S frequently plays with simple objects or engages in any form of activity which is not harmful or destructive, for brief periods, say a quarter hour or longer, without need of oversight. The item is not satisfied if these activities are simply mischievous or of such character that the S requires watching, for even at this early stage this activity should reflect such a degree of responsibility that personal attendance on his actions is not continuously required when the child is not resting.

Half of the normative S's pass this item in the first year of life and all in the second year and thereafter. The mean M-F difference is .05 years in favor of the girls. The mean total norm is .43 years.

The feeble-minded S's show delayed maturation in SA groups compared with the normative LA intervals in spite of their mean life age advantage of about 15 years. The mean SA norm is 1.05 years, SD .60. The mean N-FM difference is .62 years.



ITEM 7: *Occupies self unattended.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	.41	.45	-		N :	.37	.43	-	
F:	.33	.40	-		FM:	1.05	1.05	.60	
D:		.05		-	D :		-.62		-

We may observe here what we shall return to later, namely, that in self-initiated occupational and social participation activities the feeble-minded are definitely inferior to normals of the same general degree of ontogenetic development. This is in spite of persistent stimulation from others, for even if such stimulation is effective the pursuits are not self-sustained. This confirms the common observation regarding the inertia, or low energy drive, or low-motivated complacency so characteristic of mental defectives and which extends even to the so-called subcultural normal adult.

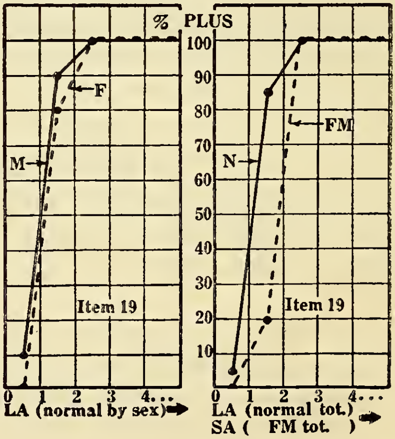
ITEM 19. (LA 1.10) *Marks with pencil or crayon.*

This is an extension of Item 7 involving more specific skill, more specialized concentration to a particular activity, more purposeful employment of materials, a more permanent outcome, and a more advanced stage of motor coordination. In formulating the item we have employed the use of pencil or crayon on the assumption that these are rather more generally available than other specific objects. Moreover, the motor skill involved is also somewhat more specific and the item can therefore be held within a definite compass. However, this item should not be construed literally but as representative of other equivalent activities, such as stringing beads, or arranging blocks in something more than random fashion, if the environment does not provide (or permit) pencil or crayon. Hence the item is not considered as an early stage of the communication category.

The item is satisfied if the S occupies himself for brief periods, say a quarter-hour or longer, in something more than mere handling of objects, and does so either spontaneously or on simple suggestion as a means of self-occupation. Little emphasis is laid on the useful outcome, but the manner of performing the item should be such as not to require supervision, and this is practically indicated by the fact that the S should not be destructive in doing so, since in that case attention and supervision are presumably necessary. Thus, whether pencil (or crayon) and paper, or beads, or blocks, are used, the result may be only a form of occupation in respect to which the operations involved should not require immediate oversight as to the importunities, difficulties and hazards involved.

This performance matures rapidly at LA 1-2 for the normative S's. The mean M-F difference is .20 years in favor of the boys. The mean total norm is 1.10 years, SD .33.

As in the previous item, the normative S's by LA excel the feeble-minded by SA. The mean N-FM difference is .70 years.



ITEM 19: *Marks with pencil or crayon.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	1.00	1.00	.34		N :	1.06	1.10	.33	
F:	1.13	1.20	-		FM:	1.88	1.80	-	
D:		-.20		-	D :		-.70		-

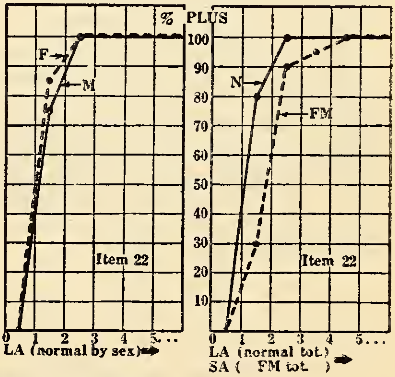
This item seems at first ill-advised because of possible lack (or prohibition) of materials and the difficulty of evaluating obtainable information. However, although these data reveal no such anticipated difficulties, they may sometimes be encountered. And although the item-caption is to be construed as including similar equivalents, these are not easily formulated. Hence this item is not wholly satisfactory and may be discarded, or a substitute prepared, in later revisions of the Scale (see Item 22).

ITEM 22. (LA 1.20) *Transfers objects.*

A characteristic and relatively spontaneous form of self-occupation is found in the child's inclination to move objects from place to place in a more or less purposeful, though not necessarily useful, manner. This is seen in filling and emptying receptacles, pouring from one vessel to another, arranging random objects in some definite pattern or grouping, employing one object as a means of transferring another, and so on. In its most useful form the S may do this as a simple form of helping another person by taking specific objects as indicated and "moving" them to specifically indicated locations.

This performance appears normatively in the second year of life. The mean M-F difference is .10 years in favor of the girls. The mean total norm is 1.20 years.

Again the normative S's excel the feeble-minded. The mean N-FM difference is .65 years.



ITEM 22: *Transfers objects.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	1.17	1.25	-		N :	1.13	1.20	-	
F:	1.09	1.15	-		FM:	1.83	1.85	.67	
D:		.10		-	D :		-.65		-

The item is satisfied if these activities are either purposeful or playful in character, but they are to be performed in such a manner as not to require immediate supervision and assistance. The periods of such preoccupation are generally longer and more frequent than for Item 19. The activity may be self-initiated or suggested but is maintained without continued surveillance. Purpose or outcome may include arranging objects in some formal pattern or apparent order.

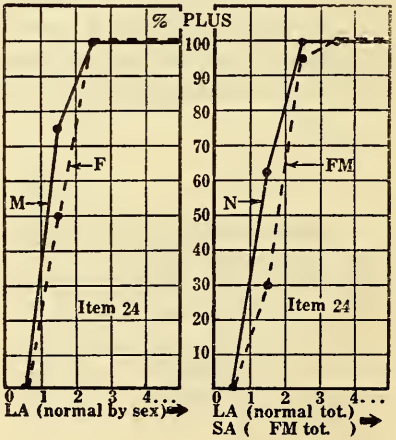
On *a priori* grounds this item is preferable to Item 19, although the data for both items are closely similar. Hence if bead-stringing and block patterns are employed (instead of marking with pencil or crayon) for Item 19, these should be slightly more simple than for Item 22 and the same activities should not be used for both items.

ITEM 24. (LA 1.38) *Fetches or carries familiar objects.*

Item 22 quickly develops into Item 24, in consequence of which we find the S employed in some small measure as a helper in performing simple errands on request or by anticipation, such as bringing, removing or transferring objects to or from nearby places, or carrying simple messages to or from nearby persons. Such performances need not be observed continuously or for protracted periods at a time, but should be consistently even though intermittently evident.

Normative success for this activity appears between LA's 1-3. The mean M-F difference is .25 years in favor of the boys. The mean total norm is 1.38 years.

The normative S's surpass the feeble-minded by a mean N-FM difference of .37 years. This difference is seen as more significant in direction than it is in amount or reliability when the advantage to the feeble-minded S's of about 15 years of age and the associated stimulation from training are taken into account.



ITEM 24: *Fetches or carries familiar objects.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	1.17	1.25	-		N :	1.30	1.38	-	
F:	1.50	1.50	-		FM:	1.81	1.75	.45	
D:		-.25		-	D :		-.37		-

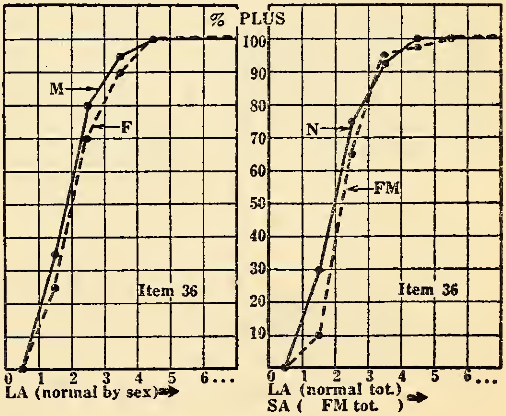
ITEM 36. (LA 2.03) *Initiates own play activities.*

An appreciably higher stage of development is seen when the S initiates his own play activities and when these are of a somewhat more complex nature than those previously described. Thus, the S now finds things to do for himself without immediate or direct suggestion, although indirect suggestions, hints or the situation itself might be the stimulus to such pursuits.

The activities themselves may be relatively simple, such as drawing or "coloring in" with pencil or crayon, building with blocks, dressing dolls, looking (by himself) at books or pictures. While so engaged the S requires no "looking after" and consequently is presumed not to be mischievous or destructive or to engage in pursuits which might be harmful or dangerous. In this, as in other items, there is a generalized increase not only in the personal responsibility exercised by the S, but also in the complexity of the occupational activity itself (as compared with Items 7 and 19).

Successful normative performance appears rapidly and consistently between LA's 1-4. The mean M-F difference is .25 years in favor of the boys, CR .64. The mean total norm is 2.03 years, SD .83.

The feeble-minded progression in SA groups closely corresponds to the normative LA curve with a mean N-FM difference of .30 years in favor of the normal S's, CR 1.19.



ITEM 36: *Initiates own play activities.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	1.83	1.90	.78		N :	1.94	2.03	.83	
F:	2.06	2.15	.86		FM:	2.23	2.33	.73	
D:		-.25		.64	D :		-.30		1.19

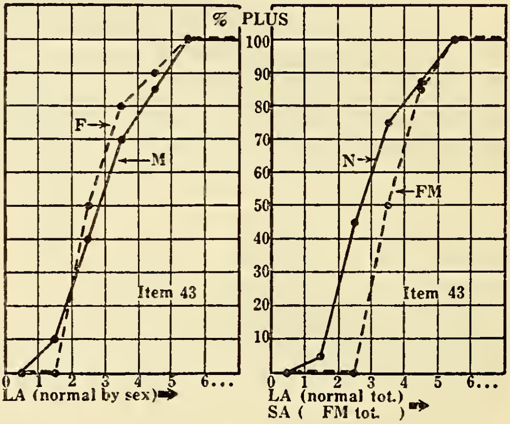
ITEM 43. (LA 2.88) *Cuts with scissors.*

Some of the child's play is inevitably (though often unwittingly) destructive. This item reflects a purposive direction of such tendencies into constructive channels. However, the item is not altogether satisfactory because of the specific responsibility and skill required, and because some environments do not afford (or permit) adequate opportunity.

To pass this item the S uses blunt scissors for cutting paper or cloth. He does this as either purposive or playful occupation with safety to himself and without destructive consequences, but in view of the hazards and temptations involved, there may be some intermittent supervision of the activity. The skills involved are of a higher order than those in the previous items, and the hazards somewhat greater; the outcome need not, but may be, useful. Cutting with a knife as in whittling, or the use of equivalent tools involving equivalent skill and hazards (e.g., painting with water colors), might be substituted for use of scissors, but these are generally more difficult and not readily defined.

Normative success appears smoothly between LA's 1-5. The mean M-F difference is .15 years in favor of the girls, CR .30. The mean total norm is 2.88 years, SD 1.06.

The feeble-minded in SA groups show delayed success but reach the normative performance at SA 4-5. The mean N-FM difference is .77 years, CR 2.68.

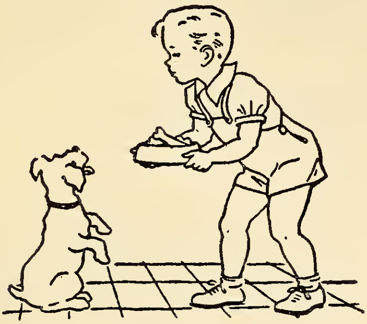


ITEM 43: *Cuts with scissors.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	2.83	2.95	1.17		N :	2.67	2.88	1.06	
F:	2.50	2.80	.94		FM:	3.50	3.65	.67	
D:		.15		.30	D :		-.77		2.68

Although this item, like Item 19 and perhaps Item 55, may seem restricted by some environmental circumstances, the consistent data for both normative and feeble-minded S's suggest that this is not really the case except as environmental control may retard but not prevent outcome. However, the likelihood of limited opportunity must be considered. In such instances plus NO scoring may be resorted to.

ITEM 48. (LA 3.55) *Helps at little household tasks.*

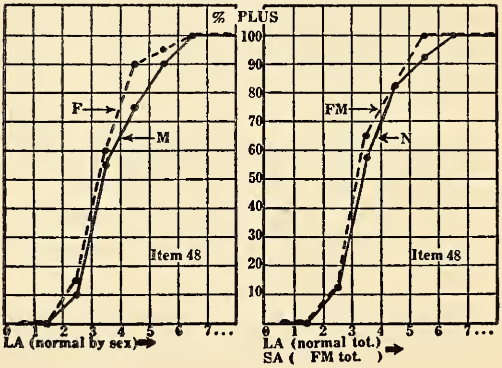


This is an extension of Item 24 involving more difficult operations, more persistent application, wider range of performances, more useful outcome, and higher degree of responsibility for the S. These tasks may be more or less equivalent to serious play, but they have a utilitarian value in the assistance they give to others.

The item is defined as helping in small ways such as running errands around the house, picking up or setting things to rights, helping to some extent in setting or clearing the table, feeding pets, and being generally useful in minor domestic ways. Equivalent operations may be done outside the house; since such tasks will usually be more difficult and less intrinsically interesting at this level they may be scored accordingly within the intent of the item. The S is not required to perform the tasks routinely (regularly) but rather on request or suggestion. He will usually show intermittent initiative or spontaneity rather than sustained reliability.

The normative maturation is smooth and rapid between LA's 2-6 years. The mean M-F difference is .30 years in favor of the girls, CR .63. The mean total norm is 3.55 years, SD 1.03.

The feeble-minded closely approximate the normative successes in SA versus LA intervals. The mean N-FM difference is .15 years in favor of the feeble-minded, CR .49.



ITEM 48: *Helps at little household tasks.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	3.39	3.70	1.11		N :	3.33	3.55	1.03	
F:	3.28	3.40	.93		FM:	3.21	3.40	.87	
D:		.30		.63	D :		.15		.49

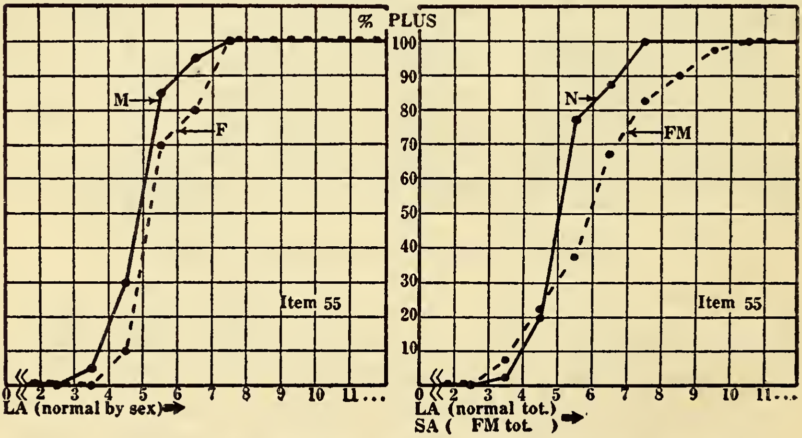
Many S's show sporadic success on this item which is consequently sometimes difficult to evaluate. The child's interest or initiative, the adult's pressures for either help or training, the "nuisance" rather than assistance value of such "help" may prove confusing for precise scoring. Such saltatory successes may usually be considered as emergent behavior and scored accordingly. NO scoring as restricted opportunity or limited occasion (need or necessity) should therefore be used sparingly.

ITEM 55. (LA 5.13) *Uses pencil or crayon for drawing.*

This is a refinement of Item 19, being also to some extent present in Item 36. Here the product is more "mature" and more realistically identifiable.

Normative success is smoothly apparent between LA's 4-7. The mean M-F difference is .55 years in favor of the boys, CR 1.41. The mean total norm is 5.13 years, SD .88.

The feeble-minded show similar onset but delayed fruition as compared with the normative S's. The mean N-FM difference is .82 years in favor of the normative S's, CR 1.88. This may to some extent be explained by loss of interest on the part of the older feeble-minded subjects in the more advanced SA groups.



ITEM 55: *Uses pencil or crayon for drawing.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	4.86	4.85	.80		N :	5.02	5.13	.88	
F:	5.17	5.40	.87		FM:	5.92	5.95	1.69	
D:		-.55		1.41	D :		-.82		1.88

Successful performance is indicated if the S produces readily recognizable outlines of familiar objects such as a man, house, tree, animal or scene with materials equivalent to paper and pencil. In lieu of actual drawings successful detailed or differential coloring with crayons or paints may be credited. Another acceptable equivalent is the modelling of objects with plastics such as clay, wet sand or plasticine. In such equivalents, and in use of water colors, finger painting and the like, the S should not be too "messy" and should not require "cleaning up after."

Some environments discourage the use of pencils or crayons at this early stage because of apprehension regarding the hazards or annoyances attending such use. But here as in similar situations such restrictions may often (though not always) be well advised because the S may not be maturely trustworthy. Hence NO scoring should not be resorted to uncritically.

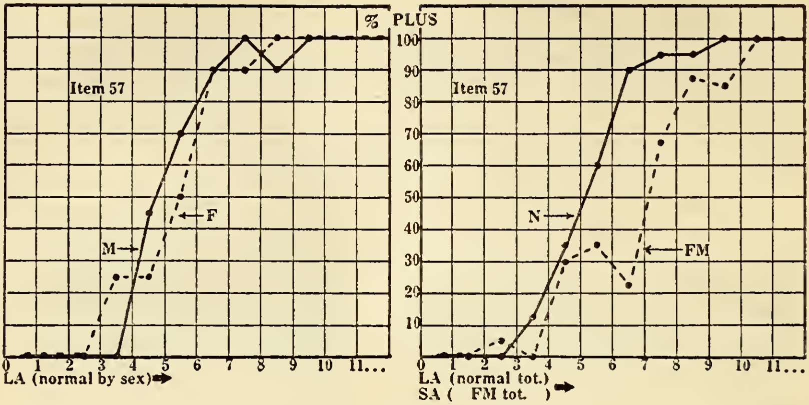
ITEM 57. (LA 5.13) *Uses skates, sled, wagon.*

This item might better have been captioned "Engages in hazardous play" since it is designed to represent those vigorous forms of recreation which involve appreciable childish risks. Hence the performances involved are to be considered more general than the caption suggests. While engaged in such play, the individual is presumed to show due care for the attendant dangers. The item is to some extent alternative for Item 55 on the part of children more actively inclined, and is of the same mean difficulty.

The item is satisfied if the S plays on or with such "locomotor aids" as skates, stilts, scooter, velocipede and like "vehicles" outside his own yard but within a more or less restricted neighborhood area, and does so with due caution. Equivalent forms of relatively hazardous play may be included, such as climbing trees, skipping rope, use of playground apparatus, and so on. While the S may have an occasional accident, he should be considered generally "safe-worthy" in respect to the ordinary risks likely to be encountered.

The normative curves show rapid progression between LA's 3-6 with some scattered individual delayed success at LA's 7-9. The mean M-F difference is .15 years in favor of the boys, CR .23. The mean total norm is 5.13 years, SD 1.39.

The feeble-minded S's show retarded accomplishment and some minor lapses in SA versus normative LA groups. The mean N-FM difference is 1.55 years in favor of the normal S's, CR 2.67. The SD for the feeble-minded subjects is nearly twice that for the normals. These differences may reflect a specific influence of the more advanced life ages of the feeble-minded S's as cessation of such activities without permitting plus F scoring or equivalent substitute pursuits.



ITEM 57: *Uses skates, sled, wagon.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	4.70	5.05	1.29		N :	5.10	5.13	1.39	
F:	5.50	5.20	1.47		FM:	7.11	6.68	2.12	
D:		-.15		.23	D :		-1.55		2.67

Note that the purpose of this item is to assess trustworthiness at vigorous play when absorbed attention to the means may prove hazardous through relaxation of vigilance. It is this observance of safety in the face of distraction that is of special importance. Hence the kind and variety of play are critical to the item. In short, the item is somewhat misleading if restricted to mere manipulation of some play vehicle without regard for the risks attending its use.

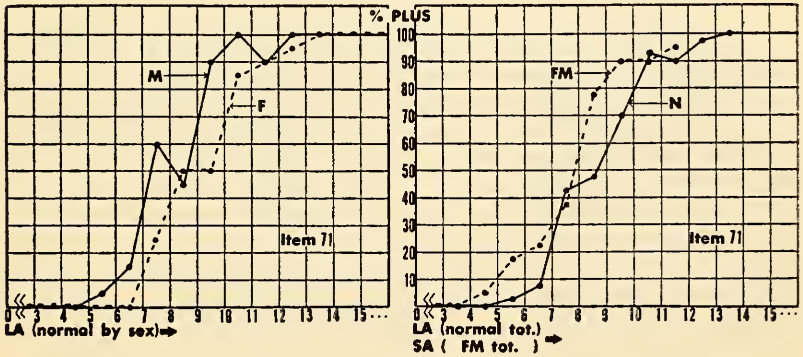
ITEM 71. (LA 8.50) *Uses tools or utensils.*

During the preschool years the S may have pounded with a mallet or hammer and may have used various improvised crude utensils for play. In later childhood he employs simple tools with some discretion and skill for useful or creative ends. These ordinarily include the purposeful use of a few construction tools such as hammer, saw or screw driver; kitchen, household or sewing utensils; and perhaps garden tools such as rake and shovel. Sex differences are not sharply distinct, although there is some tendency toward preferential masculine or feminine interests.

This item is passed if such tools or utensils are employed for some practical purpose such as repairing or making simple objects, sewing, cooking or gardening. The S is presumed to have some practical knowledge and skill in the simple use of these articles even though the resulting product or practical outcome may be relatively crude.

The normative curves progress rather smoothly between LA's 6-12, with a lapse at LA 8 for the boys, and a "pause" at LA 9 for the girls. The mean M-F difference is 1.10 years in favor of the boys, CR 1.38. (Sex difference in kinds of tools is allowed for to some extent in the alternatives of the definition.) The mean total norm is 8.50 years, SD 1.78.

The feeble-minded S's show earlier onset in SA versus normative LA groups, but delayed completion of maturation. The SA validation curve ceases at LA 11-12 with 95 per cent of the S's successful. As for Item 86 (p. 129) no serious error is introduced by assuming complete success at SA 12-13 and thereafter (as is actually the case for the fragmentary data beyond SA 11-12). If this is done, the mean N-FM difference becomes .85 years in favor of the feeble-minded, CR 1.44. Part of the delay in final maturation for the feeble-minded subjects is possibly due to restricted "occasion for" this performance in relation to the advanced age of many of these subjects.



Item 71: *Uses tools or utensils.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	8.02?	7.95	1.66		N :	8.61	8.50	1.78	
F:	9.00?	9.05	1.72		FM:	7.81	7.65*	1.86*	
D:		-1.10		1.38	D :		.85		1.44

* 100% assumed at SA 12-13.

ITEM 72. (LA 8.53) *Does routine household tasks.*

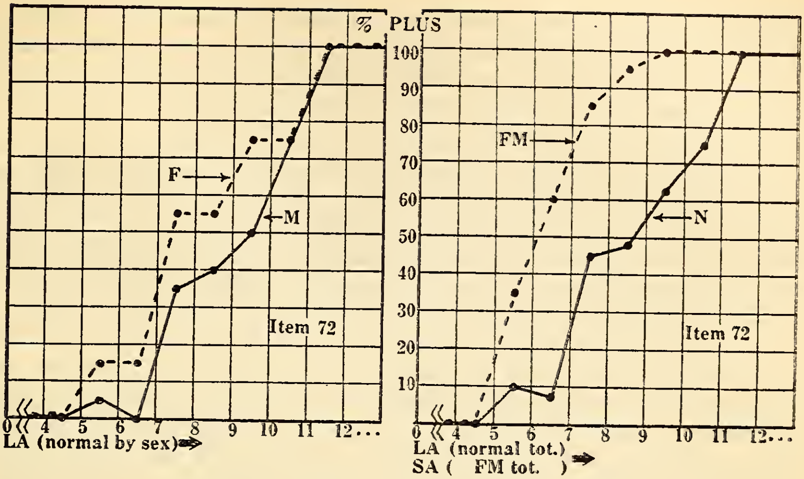
This item is an extension of Item 48 in that more continuous responsibility is carried for routine details of more helpful, yet still simple, domestic work. In difficulty the item corresponds closely to Item 71, although different in content.

To pass this item the S is relied upon (without need of undue urging and follow-up) for effective help at simple tasks which recur routinely about the house or yard. In accomplishing this the S displays some *continuing* responsibility for their recurrent fulfillment (i.e., supervision and follow-up are only intermittently necessary). The tasks are such as dusting, arranging, cleaning, washing or wiping dishes, setting or clearing the table, making beds, and other relatively simple or assistant "jobs."

In scoring this item the S may not be excused for frequent laziness, carelessness, incompetence or undependability in the performance of tasks. Although incentive and training are difficult to take into account, it will be evident that they may be particularly significant.

The normative maturation occurs between LA's 5-11. The mean M-F difference is .85 years in favor of the girls, CR .96. The mean total norm is 8.53 years, SD 1.93.

The feeble-minded show markedly earlier success and more rapid maturational acceleration than the normative S's. The mean N-FM difference is 2.28 years, CR 4.45. This is one of the few relatively large and statistically reliable N-FM differences. While this result may reflect environmental stimulation and training in tasks easily performed, note that such an effect is evident for only a few items (Table 9-A).



ITEM 72: *Does routine household tasks.*

	Med.	*Mean*	*SD*	*CR*
M:	9.50	8.95	1.72	
F:	7.38	8.10	2.03	
D:		.85		.96

	Med.	*Mean*	*SD*	*CR*
N :	8.67	8.53	1.93	
FM:	6.10	6.25	1.14	
D :		2.28		4.45

The comment for Item 48 (p. 157) is equally relevant here.

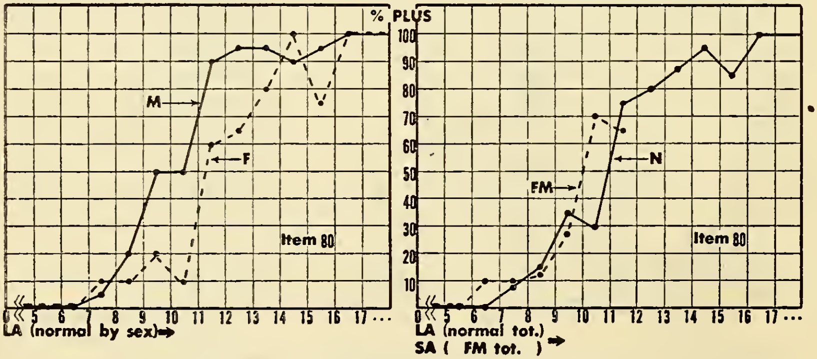
ITEM 80. (LA 10.90) *Does small remunerative work.*

This item is an extension of Item 72 in regard to helpful tasks and of Item 71 as to self-initiated work. It is a forerunner of more serious types of gainful occupation or employment. The item is rather difficult to define, however, because of its relation to the circumstances of the environment, and especially in relation to work done as familial cooperation. Such work within some families is considered as implicit duty, whereas in other families cash payments are made. Hence at this level, work within the family often takes the place of work outside the family, or at least is equivalent to it, and the "pay" received may be in satisfactions other than cash.

In defining the item, therefore, we are concerned with early stages of "work" which *merit* payment of some appreciable sort; which are reflected in occasional or intermittent effort on the S's own initiative; which are performed within the household or about the neighborhood; and for which some small returns (cash or other) are paid or might properly be paid. Such work may include odd jobs, housework, gardening, caring for children, sewing or cooking, selling magazines or simple products, carrying newspapers, acting as messenger, and other activities of similar nature.

In respect to work within the household, this item falls between Items 72 and 89. In relation to Item 72, the tasks are assumed to go beyond the simpler forms of family helpfulness and to involve those "extras" for which the family might have to pay or be willing to pay if performed by some one outside the family. Such work should not be merely trivial, or should not be paid for just as a matter of sentiment or encouragement, but should represent the first stages of gainful employment.

It has proved rather difficult to score this item because of environmental and personality variables, and this is reflected in the maturation curves. In rural environments the item may be satisfied by assistance in simple farm work; in urban environments various forms of street work such as shining shoes, tending stands, or making one's self generally useful will serve; in some industrial environments part-time juvenile employment of various sorts may be accepted.



ITEM 80: *Does small remunerative work.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	10.00 ?	10.10	2.03		N :	10.94	10.90	2.39	
F:	11.30	11.70	2.46		FM:	10.03	-	-	
D:		-1.60		1.51	D :		-		-

The normative boys progress rather steadily from LA 7 to LA 11, but show a scattering of individual failures thereafter up to LA 16. The girls show only scattered successes before LA 11, then progress rapidly to LA 14, with a lapse at LA 15. The mean M-F difference is 1.60 years in favor of the boys, CR 1.51. The mean total norm is 10.90 years, SD 2.39.

Individual feeble-minded S's succeed at SA's 6-8; thereafter the validation curve rises rapidly up to SA 10, but falls slightly at SA 11, which is the highest SA item validation group available. Hence a satisfactory SA mean cannot be calculated. Within its span the validation curve closely approximates the curve for the normative S's. Median success for the feeble-minded S's is calculated at SA 10.03 years, whereas the normative median is 10.94 years. The fragmentary data beyond SA 11-12 show 100 per cent of passes at SA 12 (N=15) and SA 13 (N=7), 83 per cent at SA 14 (N=6) and 100 per cent at SA's 15 (N=4) and 16 (N=5).

Although this item is important and readily defined, some difficulty is encountered in obtaining thoroughly satisfactory information for scoring because of variability in environmental situations. In these days of "softer" economic conditions, of reduced parental pressures, and of legislation which limits the earning pursuits of children and youth, one is tempted to speculate on the effect of the times on this item. One might also moralize on the effect of such reduced social incentives on later occupational effectiveness. Does the current benevolent solicitude for children's welfare aid or hinder their later adjustments to life's occupational desirabilities? Or does it by lack of social encouragement frustrate the assuming and later fulfillment of social responsibilities?

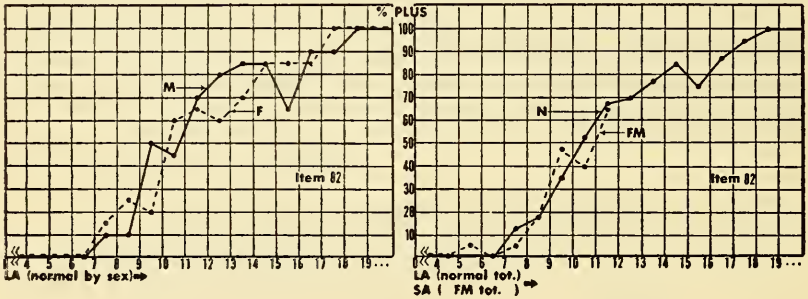
ITEM 82. (LA 11.25) *Does simple creative work.*

This is an extension of Item 71, and in some respects has a relation to Item 80. Here the use of tools or utensils is assumed to result in more mature products, such as simple repair work, or simple constructive activity of a rather original nature. The relation to Item 80 derives from both the self-initiated aspect of the work done and its possibly remunerative value. The outcome in either case may be only the prototype of socially more valuable contributions.

This is reflected in such household tasks as self-initiated cooking, baking, sewing, mending; or about the place in simple repair work, construction, gardening, raising of pets; or in more intellectual pursuits in the writing of simple stories or poems, or the production of simple paintings or drawings. The important feature of this item is its creative aspect as contrasted with routine occupational or industrial pursuits. There is consequently involved some personality element, since it will be observed that some individuals tend toward routine activities, whereas others tend toward the more independent or creative occupations.

The normative progression in this performance is gradual and somewhat irregular from LA 7 to LA 18. This is reflected in the rather high SD's. The ogives by sex are closely similar with several crossings. The curve for the boys shows delayed completion between LA's 12-18 with a noticeable lapse at LA 15. Sex difference in type of activity is allowed for in the alternatives of the definition. The mean M-F difference is .10 years in favor of the boys, CR .06. The mean total norm is 11.25 years, SD 3.29.

The success of the feeble-minded S's closely follows that of the normative S's. The FM curve is incomplete beyond SA 11-12, with SA means consequently not calculable. The median N-FM difference is .54 years in favor of the normative S's. The fragmentary data beyond SA 11-12 show 80 per cent at SA 12 (N = 15), 86 per cent at SA 13 (N = 7), and 100 per cent thereafter (N = 6, 4 and 5 at SA's 14, 15 and 16 respectively).



ITEM 82: *Does simple creative work.*

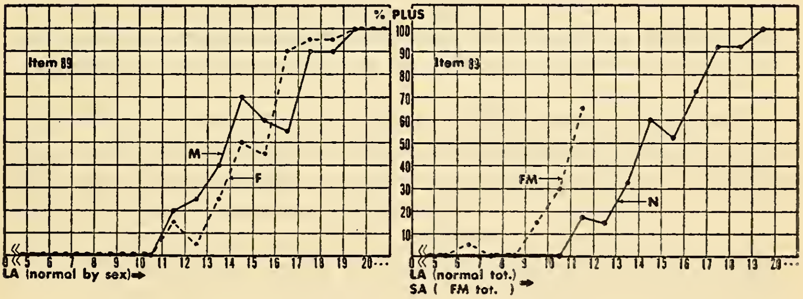
	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	10.10 ?	11.20	3.36		N :	10.36	11.25	3.29	
F:	10.25	11.30	3.23		FM:	10.90	-	-	
D:		-.10		.06	D :		-		-

Comment on this item is not the same as for Item 80 since the emphasis here is on activity rather than value, whereas in Item 80 this emphasis is reversed. The delayed normative maturation probably reflects personality differences but may be due to lack of environmental incentive.

ITEM 89. (LA 14.65) *Performs responsible routine chores.*

This is an extension of Items 72 and 80. At this level the work requires more responsibility because of its recurrent nature, and because the tasks involved are performed with little or no direction. The work is also more serious and more varied; although routine in character it requires judgment and resourcefulness. It may be performed within or outside the family, and from the point of view of meriting payment is at a higher level than Item 80.

Typical examples include household tasks, family chores, gardening, farm work, miscellaneous jobs, or industrial work. It is important that the S reveal responsibility for *continuously* performing (with only occasional instruction, urging and oversight after the initial stages of effort) the somewhat variable routine tasks assigned to him.



ITEM 89: *Performs responsible routine chores.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	13.83	14.50	2.68		N :	14.14	14.65	2.36	
F:	15.06 ?	14.80	1.97		FM:	11.07	-	-	
D:		-.30		.27	D :		-		-

The normative maturation occurs between LA 11 and LA 19. There are minor lapses for the girls at LA 12 and LA 15, a downward trend for the boys at LA's 15 and 16, and delayed completion for both sexes at LA's 17-19. The mean M-F difference is .30 years in favor of the boys, CR .27. The mean total norm is 14.65 years, SD 2.36.

The feeble-minded S's show earlier onset and more rapid initial rise than the normal subjects, but the validation curve is incomplete beyond SA 11-12. The fragmentary data beyond SA 11-12 show 67 per cent at SA 12 (N = 15), 57 per cent at SA 13 (N = 7), 75 per cent at SA 14 (N = 6), 100 per cent at SA 15 (N = 4) and 60 per cent at SA 16 (N = 5). The median N-FM difference is 3.07 years in favor of the feeble-minded.

It is tempting to infer that the relative superiority of the feeble-minded S's is due to environmental pressure directed toward useful tasks, or to advanced LA, but this ignores the lack of corresponding advantages in other item performances.

ITEM 98. (LA 18.53) *Has a job or continues schooling.*

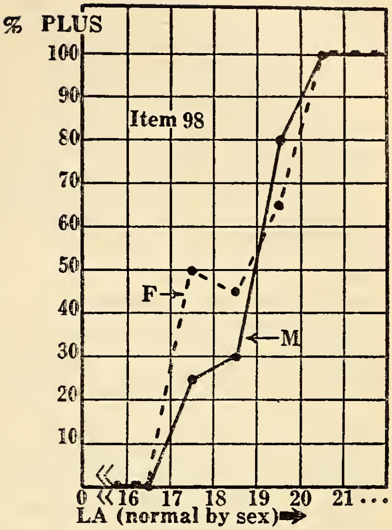
This continues Item 89 to a higher level where the work is done as fairly continuous full-time employment, usually for wages, at common labor or slightly skilled occupations. The item takes reasonable account of the variable conditions of employment, but assumes that under ordinary conditions the S will maintain work on his own initiative. The item also recognizes in view of (1) recent legislative restrictions to employment because of age and sex, and (2) the marked rise in the age of compulsory attendance at school, and (3) the conditions favorable to voluntary continuation of school beyond the high school age and level (all in the United States), that continued school attendance beyond senior high school (junior college, business school, trade or technical school, normal school, college, and so on) may be accepted in lieu of (other) steady employment.

Some elaboration of the variables which make it difficult to more precisely define the adult items related to occupational employment is offered in the summary for this category (pp. 180-184). That discussion includes some general principles which should be considered in relation to the particular specifications of these more advanced activities. Further assistance is found in the general summary for this chapter (pp. 259-265).

As to gainful work, success on this item assumes fairly regular self-sought employment which either yields or merits remuneration in cash or equivalent emoluments in relatively unskilled or semi-skilled jobs. These include common laborers, routine farm workers, factory and construction operatives, trade helpers, minor clerks, servants, routine houseworkers, and in general occupations below those required for Item 106. These occupations may be described (1) as those included in occupational grades 5 and 6 of standard occupational scales, or (2) as the apprentice or sub-journeyman level of semi-skilled trades. The examiner will need to make due allowance for unemployment due to genuine lack of work opportunity rather than to occupational incompetence, perhaps utilizing F or NO scoring. It is impracticable to specify the degree of remuneration since this fluctuates markedly with time, place, and type of work, and demand.

The normative curves rise sharply from LA 17 to LA 20 with a minor "plateau" at LA 18. The mean M-F difference is .25 years in favor of the girls, CR .44. The mean total norm is 18.53 years, SD 1.20.

The feeble-minded S's show no successes on this item up to SA 11-12. Nor are there any successes beyond this limit in the total VTS sample, which includes only institutionalized subjects most of whom presumably could not hold an independent steady job satisfactorily in the world at large. They are also incapable of continuing schooling beyond high school.



ITEM 98: *Has a job or continues schooling.*

	Med.	*Mean*	*SD*	*CR*
M:	18.90	18.65	1.02	
F:	18.13 ?	18.40	1.36	
D:		.25		.44
Tot.:	18.86	18.53	1.20	

It may be noted that many feeble-minded S's *outside* institutions are gainfully and often satisfactorily employed in spite of, and without contradicting, their mental deficiency. This is evidence that occupational pursuits alone do not insure social competence amounting to essential normality, nor does lack of employment alone reduce normal social competence to feeble-minded limits.

Some institutional mental defectives are excellent workers and either merit or actually receive remunerative emoluments. But this fact does not warrant a plus score on this item since such S's are not maintaining their employment independently. Specific evidence on these issues is reported by Ordahl, Keyt and Wright (p. 558).

The detailed distribution of all the normative plus scores on this item were: (1) for males, 5 attending school beyond high school, 61.5 in general occupations, 34.5 in trade jobs, and 25 in clerical work; (2) for females, 5 attending school, 60.5 in general occupations, 27 in trade jobs, and 36 in clerical work. The scores were generally unaffected by LA except that those attending school were all below LA 24 years. The plus scores for "general occupations" for female S's included 19 as housewife, not including 23 additional on Item 106 (q.v.).

Some difficulty will be encountered in evaluating grade of work in relation to occupational titles. The spread in type of work, degree of skill, responsibility and knowledge is rather wide for each of three items (98, 106 and 114) employed for this purpose in this scale. Thus "farmer" may mean anything from the odd-jobs farm hand to independent farm manager on a large scale. "Teacher" may range from routine elementary instruction to professional research supervision. "Secretary" might include duties from appointment clerk through file clerk, typist, stenographer, senior clerk stenographer to high-grade business, professional or editorial duties. A "carpenter" may be a hatchet-and-saw helper, journeyman specialist, contract carpenter, cabinet-maker, or designer. The examiner must be fairly conversant with these wide ranges of occupational talent as represented in standard occupational scales in order to assign proper evaluation scores in a given case. Even when this is clear, the range from bare plus to abundant plus on a given item will be wide, and doubt will be experienced in deciding whether a given score should be a high plus at a low level or a low plus at a higher level (e.g., a high-plus housewife on Item 98 versus a low-plus household manager on Item 106).

School mortality statistics indicate that even under today's favorable conditions less than a third of those who enter school graduate from the 12th grade. Probably less than a third of these (or about ten per cent of those of college age) continue schooling beyond high school. In our normative sample only 10 subjects of all those who were scored plus on this item were so scored on the schooling alternative. Five of these were boys under LA 24 and five were girls under LA 22 years, with not more than two subjects at any one age and sex. Hence, this alternative is less important than might at first be expected. And in spite of the extreme range of individual occupations, no difficulty was encountered in scoring this item within its rather general form of definition.

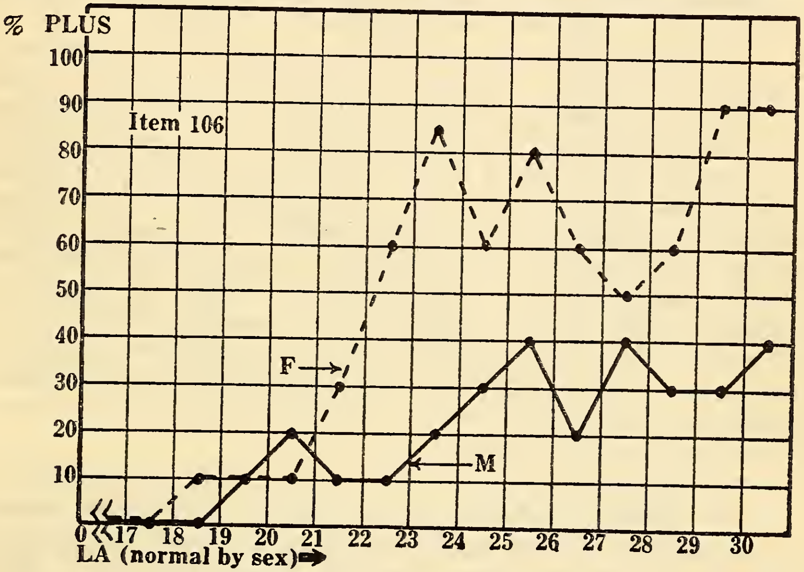
ITEM 106. (LA about 25) *Performs skilled work.*

This item is similar to Item 98, but at a higher level.

The grade of work is represented by the journeyman level of skilled occupations, including trade technical, skilled clerical and minor professional occupations, and the minor degrees of supervisory work.

These occupations are represented by classes 3 and 4 of standard occupational scales and include such workers as skilled office clerk, skilled ar-

tisan, school teacher, trained nurse, independent farmer (as contrasted with farm hand), small merchant, shop foreman, department supervisor, and those superior grades of housework which might be designated as household manager (as contrasted with simple housework). These occupations are above those in Item 98 and below those of Item 114. It is impracticable to formulate finer gradations because of the variable work encompassed under similar job titles (see comment on Item 98). In lieu of such gainful employment, the item is satisfied if the S is successfully attending upper class courses of standard college curricula that are beyond junior college, or beyond the sophomore year of a standard four-year college course.



ITEM 106: *Performs skilled work.*

	Med.	*Mean*	*SD*	*CR*
M:	-	-	-	
F:	24.84 ?	-	-	
D:		-		-
Tot.:	25.38 ?	-	-	

This is the first item thus far discussed for which the normative standardization does not reach or maintain 100 per cent of success (see Item 102 for the first such item in the Scale as a whole). Hence we must resort to empirical rather than conventional, statistical interpretations (see discussion p. 361). It is, of course, desirable in such a scale as this to include ceiling items which few or no subjects pass.

The normative women surpass the men. This is chiefly due to the inclusion of skilled clerical occupations which are beyond the upper limit of Item 98 but within the lower range of Item 106. Individual successes for the women occur at LA's 18-20, followed by rather rapid rise to LA 23, and uneven maintenance of success thereafter. Hence later maturation in this item does not succeed in cancelling individual differences beyond LA 22, for success fluctuates thereafter between 50 and 90 per cent of passes. Median success is reached at LA 22.17 years, but is repeated at LA 27.5 years. The average of these is 24.84 years. (Note that for all such "awkward distributions" in these graphs the median reported is accompanied by "?" to indicate the average of all the 50-percentile points.) The average ceiling is at 71 per cent success for LA's 22-30.

The normative men show individual successes from LA 19 to LA 23. then rising to a maximum of 40 per cent and maintaining an average ceiling of 33 per cent for LA's 24-30.

The total normative curve (omitted) is a mean of the M-F curves. It rises gradually from LA 18 to LA 23 but is unevenly maintained thereafter. There are five median crossings, whose average is 25.38 years. The average ceiling is 52 per cent for LA's 23-30.

The feeble-minded S's show no successes on this item. Nor are there any individual successes beyond the item validation group within the total VTS sample. It is not to be expected that any mentally deficient person would succeed on this item without exceptional supervision.

In general, the item may be said to represent the 25-year level of maturation. This means that only one-half of S's over LA 25 are expected to succeed on this item. The M-F differences are more apparent than real; the women are favored by clerical and teaching occupations (a) in which success is rather quickly established, (b) which represent chiefly intellectual rather than manually skilled tasks, and (c) which tend toward routine rather than independent skilled work. The schooling alternative occurs for only one man (LA 22) and no women. The range of occupations is wide as to degree of skill and varied as to kind of work. Hence it is impracticable to define the kinds of employment; the examiner must be sophisticated in such interpretations and will be assisted by familiarity with standard occupational job-analyses.

The detailed analysis of the normative plus scores shows: (1) for males, a scattering of occupations from skilled trades to junior professional work and small business management (positions occurring more than once being salesmen 5, office manager 4, business 4, bookkeeper 3, in a total of 28); (2) for females, more concentration in fewer occupations especially clerical and teaching (20 stenographers, 8 secretaries, 8 bookkeepers, 21 teachers, 6 hairdressers, 3 nurses, 3 telephone operators). All of 23 housewives were either yet or recently in such skilled occupations as just listed.

It is to be noted that plus score on this item gives automatic credit on Item 98. Credit for occupation as housewife is given at Item 98 when "housewife" involves only routine housework on a simple plane, and also at Item 106 where it involves household management at a more complex level. This requires examiner's discretion regarding the specific circumstances encountered, e.g., when the care, training and nursing of children is at a semi-professional level, or the problems of the business management of the home (financial, household staff, maintenance and the like) approximate business management. Consideration of husbands is not included here except in those instances where the "man of the family" actually performs the work of the typical housewife. Note that husband and wife may receive additional scores on such items as Items 100-105.

ITEM 107. (LA 25+) *Engages in beneficial recreation.*

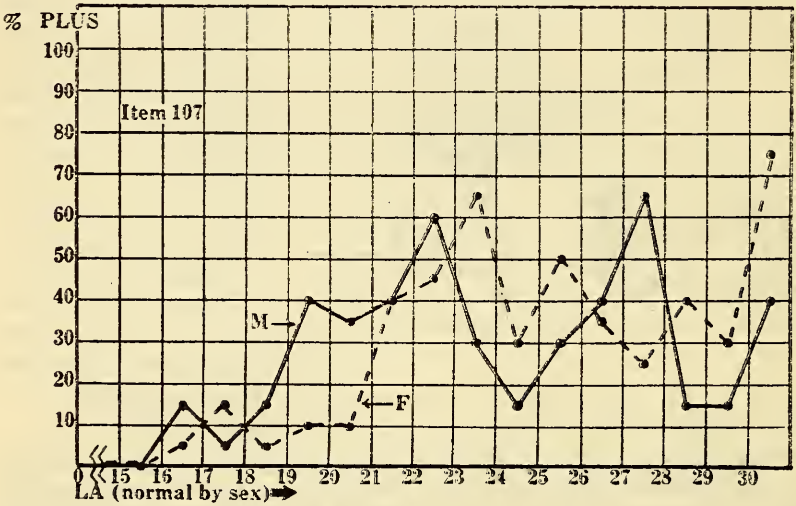
This item may seem to be irrelevant in the occupational category. It represents a continuation of those early self-initiated personal activities which reflect social maturation without necessarily productive outcome. But even if these engagements do yield practical returns, our interest centers not so much on these fruits as on the otherwise profitable use of leisure time.

The item is to be interpreted as seriously purposive adult recreation as contrasted with mere sitting around or relaxing in passive amusement as spectator or listener rather than as an active participant. In other words, the activities reflect a mature display of need for development of what might be called personal self-expression outside the field of economic necessity. These absorptions are extremely varied in such fields as athletics, literature, music, art, drama, gardening, collecting, travel, serious discussion of important topics, and in general the more advantageous forms of worthwhile diversions. Some of the more specifically socially directed forms of correlated activities will be found in the superior level of the socialization category.

Like most of the superior adult items, this item is difficult to define because of its varied forms of expression and because of the difficulty of placing a proper value on the level of development which the activities reflect. The examiner is therefore cautioned against scoring the item too generously. The performances involved are basically related to making profitable use of leisure time for safeguarding or improving the S's mental and physical welfare. This is witnessed in serious reading, healthful games and sports, constructive hobbies, creative gardening or breeding, musical performance and appreciation, serious dramatic and artistic interests, and so on. Merely passive interests, casual amusement, or pre-adult pastimes are not to be credited at this level. The examiner must distinguish between youthful and adult recreations of the same order but different purpose and outcome, and this calls for discreet judgment as well as sophisticated discrimination.

The normative evidence shows a few individual or emergent successes prior to LA 19; thereafter some maturation is apparent but is heavily overlaid with individual differences. M-F differences are not consistent in LA groups (note interlacing graphs), but the women show a faint tendency to excel the men. The data do not permit calculation of standard central tendencies. The mean per cent of success for men is 35 per cent for LA's 19-30, and for women is 38 per cent for the same intervals. Top success is 75 per cent of passes for the women, 65 per cent for the men, and 57.5 per cent for the total. The "medians" (averages of 50-percentile points) are invalid since the graphs are not ultimately sustained above the 50-percentile.

None of the feeble-minded S's in the total VTS population pass this item.



ITEM 107: *Engages in beneficial recreation.*

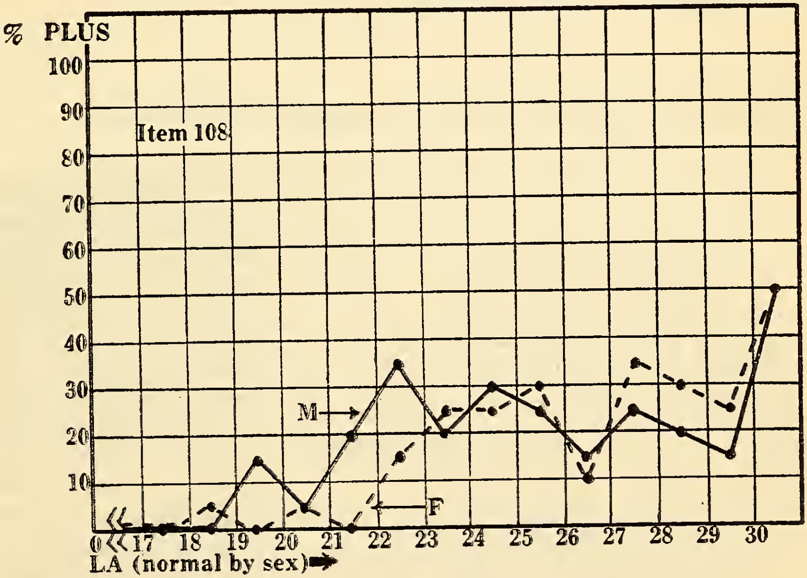
	Med.	*Mean*	*SD*	*CR*
M:	24.88 ?	-	-	
F:	26.06 ?	-	-	
D:		-		-
Tot.:	25.20 ?	-	-	

This item is not very satisfactory and should be replaced or discarded in later revisions. Although readily defined it is not easily scored because of difficulties of specific evaluation. Moreover, the item seems rather weakly "loaded" for social competence at this level and somewhat irrelevant because of its individual rather than group-social bearing. It is also for some subjects a "retreat" substitute for more effective forms of social self-sufficiency.

ITEM 108. (LA 25+) *Systematizes own work.*

This item represents the superior aspects of general occupational effectiveness as revealed by the initiative, responsibility, originality, system and resourcefulness with which the S performs his work. The item might be considered as belonging in the self-direction category, but is included here because of its more immediate reference to manner of working. A superior aspect of all work is the extent to which one exercises foresight, planning, alertness, adaptiveness and thoroughness for increasing one's occupational success.

To satisfy the item it should be apparent that the S typically programs his work in such a manner as to provide for contingencies and for making the most effective use of his time and energies for increasing the value of his work as to quantity, quality, and variety. Another aspect is the employment of new devices and methods (see Item 116), a tendency toward experimentation, and the designing or adoption of new tools, methods, materials and procedures.



ITEM 108: *Systematizes own work.*

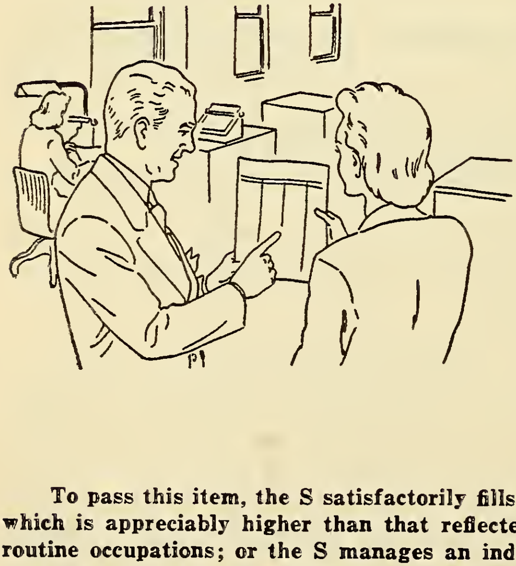
	Med.	*Mean*	*SD*	*CR*
M:	-	-	-	
F:	-	-	-	
D:		-		-
Tot.:	-	-	-	

A few of the normative subjects pass this item between LA's 18 and 22. Success is thereafter revealed in about one-quarter of all subjects but without stable increases with advancing LA. Prior to LA 23 the men slightly excel the women; thereafter the M-F difference is neutral (LA's 23-26) or reversed (LA's 27-29).

None of the feeble-minded S's in the total VTS population pass this item.

This item is valuable as one phase of superior adult social competence but does not "standardize" normatively because of its comparatively late and infrequent appearance. A scoring difficulty is encountered because the criteria reflect personality attitude or a qualitative manner of performing work as opposed to the level at which such work is performed. The item emphasizes self-improvement in work as one important phase of occupational competence which is not satisfactorily provided for in the preceding items. It also anticipates the remaining items in this category.

ITEM 111. (LA 25+) *Supervises occupational pursuits.*

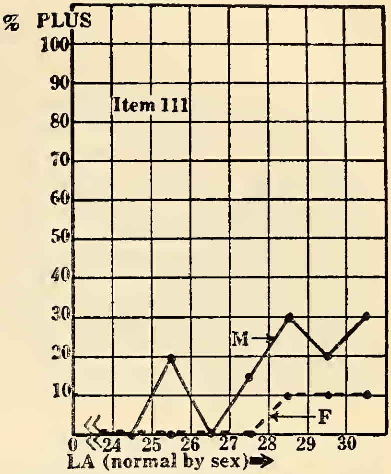


This item provides for the minor supervisory and executive features of gainful employment. Administrative control, or occupational management, requires aptitudes and competences beyond the productive work to be done. This exercise of directive responsibility represents a higher level of accomplishment than those required for Items 98 or 106.

To pass this item, the S satisfactorily fills a minor executive position, which is appreciably higher than that reflected in the foreman grade of routine occupations; or the S manages an independent business at something higher than the small merchant level.

None of the normative S's pass this item below LA 25, and none of the women succeed below LA 28. Twenty per cent of all the men at LA's 25-30 succeed, and 10 per cent of the women at LA's 28-30. The item therefore suggests maturational progression rather than mere individual differences in the superior adult range with a "top" of 30 per cent success for men and 10 per cent for women. This intimation of male superiority (if real) may reflect a cultural prejudice but more plausibly suggests a male advantage.

None of the feeble-minded S's in the VTS population succeed on this item.



ITEM 111: *Supervises occupational pursuits.*

	Med.	*Mean*	*SD*	*CR*
M:	-	-	-	
F:	-	-	-	
D:		-		-
Tot.:	-	-	-	

It will be evident that several of the adult items in this category might be considered as alternative rather than progressively cumulative. That is, some superior adults may achieve less than the scores due them because of differences in interests or aptitudes rather than of lower competence. We can merely indicate that versatility of interests and aptitudes does increase competence if for no other reason than that of greater availability for more manifold undertakings. In short, supervisory success *added* to other success means more than merely *alternative* to such achievement (cf. p. 181).

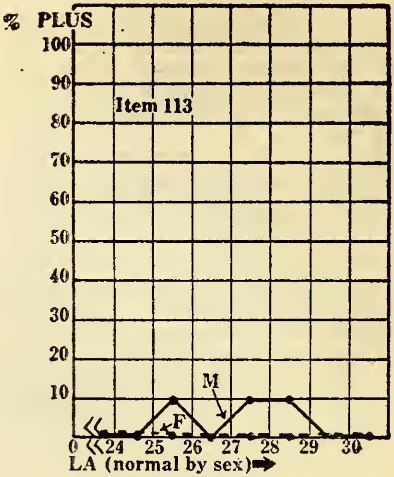
ITEM 113. (LA 25+) *Directs or manages affairs of others.*

This is an extension of Item 111 in which managerial and supervisory functions operate at a superior executive level.

This is represented by department heads of fairly large business concerns, or by administrative responsibility for technical or professional operations which require leadership in addition to specialized knowledge or skill; or the S manages a large business in which he employs numerous workers or controls extensive investments or expenditures. The item is also a superior development of Item 108, in respect to which the S not only systematizes his own work, but also plans and directs the work of others in a major way. The item does not imply that the work of those thus coordinated is inferior to that of the coordinator (cf. Items 114 and 116 and also discussion pp. 180-182).

None of the normative women, and none of the men below LA 25, pass this item. Ten per cent of the normative men succeed at LA's 25, 27 and 28. The item apparently demands superior competence, but these data reveal only superior individual differences suggestive of superior maturation.

None of the feeble-minded S's in the total VTS population pass this item.

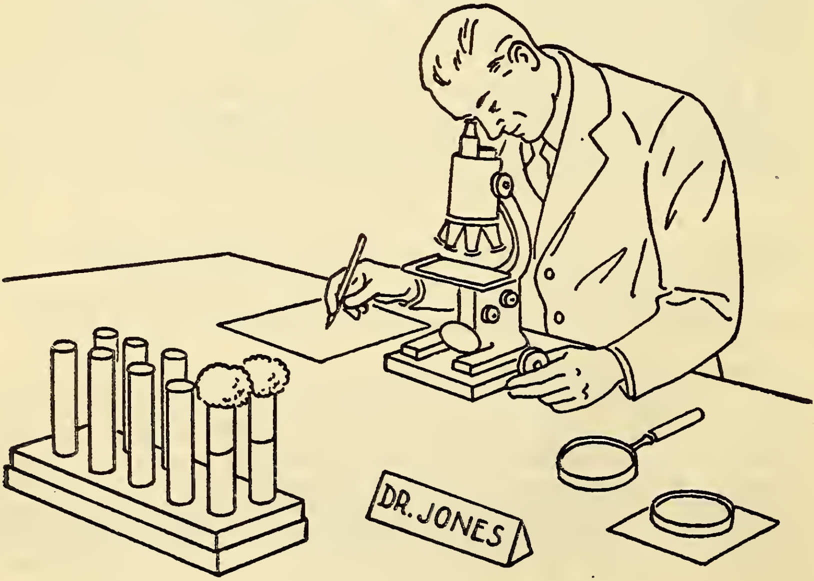


ITEM 113: *Directs or manages affairs of others.*

	Med.	*Mean*	*SD*	*CR*
M:	-	-	-	
F:	-	-	-	
D:		-		-
Tot.:	-	-	-	

ITEM 114. (LA 25+) *Performs expert or professional work.*

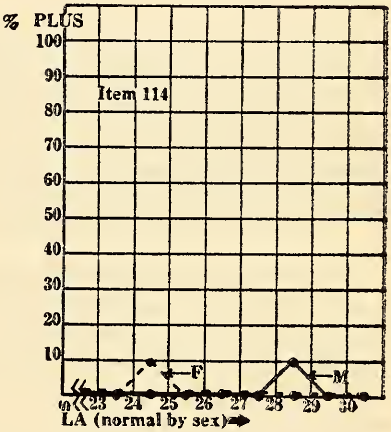
This item is both superior and alternative to Item 113.



The level of activity is superior to the items previously discussed in degrees of skill, knowledge, product or management, as represented by occupational grades 1 and 2 of standard occupational scales. Note that such work may be above, equal to, or below the requirements of Item 113, i.e., inclusive or exclusive of it.

To pass this item, (a) the S pursues with note some profession (e.g., ministry, law, medicine, engineering) such as requires at least college graduation or equivalent preparation or aptitude; or (b) the S maintains a career (literary, dramatic, artistic and other) of high merit as reflected in successful output, reputation and performance; or (c) the S commands respect as an acknowledged authority in a field requiring specialized knowledge or superior skills; or (d) the S performs executive work at the superior executive level of a large business or professional sphere, as for example, director of department heads, or chief of skilled operations.

In the normative sample one woman at LA 24 passes this item and one man at LA 28. These S's reveal the occasional incidence of successful performance in the adult range of social development. Hence the item samples a highly superior achievement which does not "normatize" because of its rarity.



ITEM 114: *Performs expert or professional work.*

	Med.	*Mean*	*SD*	*CR*
M:	-	-	-	
F:	-	-	-	
D:		-		-
Tot.:	-	-	-	

This item might have included a schooling alternative at the graduate level of college instruction or at correspondingly high levels of artistic, business, and other career preparation. This alternative was deemed inadvisable because such graduate or preparatory study represents only a high-grade novitiate preliminary to the social competence expected for this item in the gainful, productive or administrative pursuit of such callings.

ITEM 116. (LA 25+) *Creates own opportunities.*

This item is a superior expression of the performances contained in Items 108, 113 and 114.

Here the S independently exploits his environment in a large or critical way for his own advancement or the general good. Here the S also shows superior creative or organizing success sustained over an appreciable period of time in such a manner as to reveal something more than the capitalizing of temporary favorable opportunity. Thus the S designs new ways of doing things, makes important contributions to the further development of his field of work, is adaptive and creative in departing from accepted routines and substituting improved procedures or promoting original discoveries, improved operation, and more efficient management. Or the S opens new markets, fosters the use of new materials, increases the efficiency of organization, introduces new procedures, and in general does the work of an outstanding investigator, authority or leader. The fields of operation are extensive, such as science, invention or discovery, the arts and humanities, politics and government, business education, and many others.

None of the normative S's pass this item. This means that the performance is too rare to be encountered at all in the relatively small population sample employed in this standardization. Yet the item obviously represents an important high degree of social competence which is encountered infrequently in more extended population data. Its inclusion in this scale is warranted by the need for "tailing" the Scale to cover relatively unattainable performances or those which are only rarely attained in relatively extended population samples. Its successful performance in particular individuals is witnessed in the illustrative examinations (pp. 307, 334).

Summary. In summarizing this category we may re-observe that the items are designed to evaluate all stages of occupational development. The difficulties of this undertaking are readily apparent. The juvenile items include self-occupation and simple forms of work; the adult items include occupational skills which require facility, knowledge and management as well as social relations. Although we have placed in this category those items which are primarily occupational in character, this grouping is principally one of convenience for purposes of examination and no special value attaches to this arrangement. Except for the logic of the Scale as a whole, this dilemma is relatively unimportant. Much more serious is the distinction to be made between occupations from the point of view of their inherent skills and knowledge as contrasted with their executive supervision and administrative management as well as associated social relations. The philosophy of the Scale suggests that directing the work of others represents a higher stage of social maturity than does the actual performance of skilled work.

A particular difficulty is encountered in attempting to illustrate the fields of work, the levels of work performance, and the nature and variety of tasks. Considering the extremely wide range of occupational activities and the varying levels at which these are performed under different exigencies of time and circumstances, it is both inadvisable and impracticable to amplify the illustrations of the central principles involved in each item. This is taken care of to some extent in the standard occupational scales, job analysis descriptions, and occupational dictionaries with which the examiner must be familiar if he is to score the adult occupational items with confidence and accuracy. Obviously it is desirable that the examiner himself be widely informed or experienced in the field of employment and intimately familiar with the complex of abilities required at different occupational levels.

It is also important to distinguish between what might be called occupational levels and occupational virtues (p. 30).

We have already noted that the three items (98, 106 and 114) employed for successive job levels are severally too broad for clear differentiation of the progressive stages of social competence reflected in productive work. Perhaps five, or even ten, stages might be isolated. This would avoid compressing dissimilar work levels into similar stages. It is probable that the unsatisfactory nature of the data curves for Items 106 and 114 is in part due to this confusion of inequalities of work values.

There is a further dilemma, namely, the relative values of "productive" versus administrative effort. Society generally places a higher value upon (offers larger returns to) managerial tasks than upon supervised work. This is presumably because the executive *provides for* the "worker." Yet at given levels of work the "operative" may be more competent than the "operator" in respect to the work to be done, while less competent to provide the conditions needed for doing it successfully. It is the coordinating leadership of the manager that rates him as more competent than those whom he manages, even though the ultimate operations performed may require *other* proficiencies superior to those attained by "the boss."

In effect the dilemma may be resolved by rating the leader at one work level as equivalent in competence to the workman at the next level. Thus, in the estimation of social competence (1) the gang-labor boss may be thought of as equivalent to the semi-skilled workman, (2) the foreman of a semi-skilled group to the skilled craftsman, (3) the supervisor of a skilled group to the highly skilled artisan, (4) the minor executive to the expert— elaborated according to the occupational fields or job titles under consideration.

In this scale we have implemented a compromise solution by separating the manner of work (Items 108, 111, 113 and 116) from its (other) level of difficulty (Items 98, 106 and 114). But we have also extended the compromise to alternatives within these items. It is evident from both speculative and empirical considerations that the result is not altogether satisfactory; indeed to some it will seem quite unsatisfactory. We may well anticipate that later work may produce happier results.

The maturational tendency toward self-expression in work is likely to be inhibited when the individual is obliged to work at occupations not suited to his talents. There may then ensue apathetic attitudes toward work which produce laziness, perversity or insubordination. The frustrated normal satisfactions in work may then be compensated by resistance toward management authority with consequent need for increasing the pressure of supervision. This creates a vicious circle in which the individual tends to limit his own achievements by seeking to avoid the constraints imposed upon him by the necessities of working. The final result is an obvious temporizing or trifling with one's most important social responsibility, namely, the need for sustaining economic self-sufficiency. Hence many individuals succeed poorly under authority but succeed rather well when this pressure is absent, although freedom in work is usually earned by first submitting to authoritative direction. However, the opposite effects are also encountered.

These observations are pertinent in scoring occupational performances with reference to the degree of responsibility or self-sufficiency with which such activities are pursued. This is specially noteworthy during the late adolescent period when the individual is most positively seeking self-dependent status.

The adolescent may be so absorbed in pursuing his own interests that he tends to be socially non-cooperative except for his own immediate group or where his own interests are heavily at stake. This egocentric absorption is so characteristic of adolescents as to seriously influence the scoring of items in the adolescent range. Consequently personality attitudes at all ages have special influence on these performances. The examiner is cautioned against being too sympathetic with these motivation complexes and is urged to score the items at face value in terms of actual performance since the measure of maturation during this period involves cooperative social responsibility.

The situation is further complicated by the need for accepting continued attendance at school in lieu of gainful employment. Here the occupational activity is one of continued preparation

SUMMARY of ITEM DATA

OCCUPATION CATEGORY

(From Tables 2 and 9)

	Normative by sex						Normal vs Feeble-Minded					
Item	M	F	SD_m	SD_f	D	CR	N	FM	SD_n	SD_{fm}	D	CR
7	.45	.40	—	—	.05	—	.43	1.05	—	.60	—.62	—
19	1.00	1.20	.34	—	—.20	—	1.10	1.80	.33	—	—.70	—
22	1.25	1.15	—	—	.10	—	1.20	1.85	—	.67	—.65	—
24	1.25	1.50	—	—	—.25	—	1.38	1.75	—	.45	—.37	—
36	1.90	2.15	.78	.86	—.25	.64	2.03	2.33	.83	.73	—.30	1.19
43	2.95	2.80	1.17	.94	.15	.30	2.88	3.65	1.06	.67	—.77	2.68
48	3.70	3.40	1.11	.93	.30	.63	3.55	3.40	1.03	.87	.15	.49
55	4.85	5.40	.80	.87	—.55	1.41	5.13	5.95	.88	1.69	—.82	1.88
57	5.05	5.20	1.29	1.47	—.15	.23	5.13	6.68	1.39	2.12	—1.55	2.67
71	7.95	9.05	1.66	1.72	—1.10	1.38	8.50	7.65*	1.78	1.86*	.85	1.44
72	8.95	8.10	1.72	2.03	.85	.96	8.53	6.25	1.93	1.14	—2.28	4.45
80	10.10	11.70	2.03	—2.46	—1.60	1.51	10.90	—	2.39	—	—	—
82	11.20	11.30	3.36	3.23	—.10	.06	11.25	—	3.29	—	—	—
89	14.50	14.80	2.68	1.97	—.30	.27	14.65	—	2.36	—	—	—
98	18.65	18.40	1.02	1.36	.25	.44	18.53	—	1.20	—	—	—

for later gainful employment and may be accepted in place of productive employment provided that such schooling is pursued with success and is not a mere evasion of work or a passive continuation of the period of adolescent dependence.

Although occupational activities are essential to the satisfactory appraisal of social competence, the environmental and personal differences involved make difficult a satisfactory formulation of relatively universal performances which adequately anticipates all varieties of such experiences. Hence the items of this category may seem subject to criticism as too heavily influenced by opportunity, necessity, or variety of attending circumstances. On the other hand, for at least these experimental subjects, both normative and comparative, and in the various application studies of both individuals and groups, such anticipations are not seriously encountered in fact. Hence the *data* confirm the practicability of these items even though logical speculation raises doubts. The criterion of habitual performance is assumed for each item as elsewhere emphasized, but to avoid tedious repetition has not been stressed in these items.

Mean item norms are not established in this category beyond Item 98. (For discussion of norms rated "LA 25+" see p. 362.)

Statistically reliable normative sex differences are not apparent for any item in this category. The highest M-F CR is 1.51 (Item 80). The highest mean M-F difference is 1.60 years (also Item 80). Variability in performance is also not serious; the highest SD is found on Item 82 (3.36 for boys and 3.23 for girls).

Three items show relatively high N-FM CR's, namely Item 72 (CR 4.45), Item 43 (CR 2.68) and Item 57 (CR 2.67). The first shows a mean N-FM difference of 2.28 years (one-third its base) in favor of the feeble-minded S's, the second .77 years (one-quarter of its base) in favor of the normative S's, and the third 1.55 years (one-third of its base) in favor of the normative subjects.

COMMUNICATION

> *These four facets—listening, speaking, reading and writing—give shape and form to the diamond of language. Polishing this diamond is a life's work.* — Emmett A. Betts

Verbal commerce with one's fellows is another critical mode of social development. Societies may be said to develop through increased facility in social intercourse, and language use is its principal medium. In our day and in our society, this development has reached such a high point that much of our early life experience is devoted to acquiring various means for the interchange of ideas through conversation, reading, writing, pictures, graphs, formulas and so on.

From another point of view, we may say that social competence is directly related to facility in *means* of communication, since so much of the affairs of any human society are conducted through verbal, pictorial and symbolic exchange. In the higher forms of society such facility is increased from the merely vocal-verbal and pictographic stage to the literate-verbal and abstract symbol level. Thus remote and recorded communication as opposed to immediate and evanescent intercourse increase the range of social competence. Literacy and the extended use of modern mechanical means of communication (printing, telephone, telegraph, phonograph, camera, radio, for example) definitely influence social competence by increasing both the extent and variety of the individual's social horizons. The illiterate person is definitely handicapped in the social expression of his capabilities. Similarly the deaf are handicapped by the limitations of non-vocal communication, and the blind by non-visual communication.

We are not concerned primarily here with the psychological significance of the development of language nor with the intrinsic values of scholastic achievement. We are concerned rather with the social uses to which language, literacy, and other means of communication are put and the degrees to which this influences the more complex forms of social adaptation. This category therefore includes items from earliest infancy through late adolescence, beyond which communication becomes too highly specialized for our purposes or else is reflected indirectly as contributing factors in other items, especially as related to occupational and social pursuits.

We shall have to exclude the use of certain means of communication because of their relative lack of universality or general availability. This is not because of their unimportance but rather is due to environmental and economic variabilities.

We must also distinguish between social maturity and social competence in this category. With a given degree of competence in the use of the English language one may be incompetent in Chinese, although perhaps capable of so becoming competent. Or a sign-versed deaf person may be unable to "talk" with a hearing person not so versed. Also the blind who attain competence in the use of Braille are set apart in such communication from those not thus competent though equally mature in command of language. Hence competence in communication as in other aspects of social maturation depends heavily upon milieu, and the individual's capacity or incapacity for assimilating the modes of competence pertaining to various environments may not be ignored.

The 15 items in this category are spread from birth to eighteen years, with 3 at years O-I, 2 at I, 1 each at II, V, VI and VIII, 3 at X, 1 at XI, and 2 at XV-XVIII. Originally, certain of these items were expressed as the use of school grade achievement, but this proved impracticable because of the difficulty of obtaining satisfactory evidence on the use *of* achievement. Consequently the items were reformulated with use *as* achievement. Obviously, school achievement is not necessarily capitalized for social use, and conversely social use may be independent of (formal) school achievement. Hence, what the S *does* with his learning rather than what he has learned or been taught is of prime concern.

The serial sequences include eight items (1, 10, 17, 31, 34, 44, 79 and 91) on vocal communication (inarticulate, articulate, receptive, declarative, narrative and discussive), five items (58, 63, 78, 81 and 90) on writing, and 2 items (73 and 84) on reading. However, there is considerable overlap in the last nine items of the category since reading, writing and conversation are intermingled.

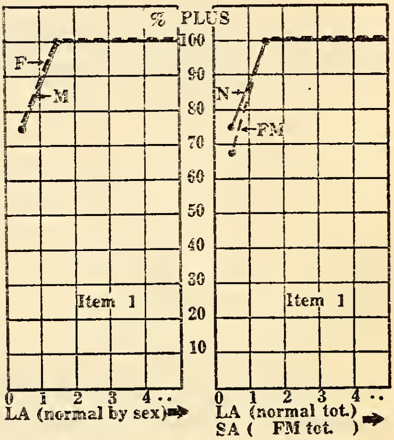
ITEM 1. (LA .25) *"Crows"; laughs.*

This is one of the earliest forms of all expression and is socially useful as communicating to others the state of the individual from the point of view of need for attention. The item is also a preliminary stage of more significant later details of communication.

At this stage the S vocalizes inarticulately through spontaneous gurgling or cooing, and in this way expresses spontaneous evidence of comfort or satisfaction. Or the S may laugh spontaneously, or when stimulated, as a means of registering pleasure feelings. Not that other forms of vocalization such as crying or fretting are less significant, but rather that these continue only for a few years, and therefore cannot be differentiated readily for maturation purposes. The relative absence of crying after about LA 4, 5 or 6 years is more significant socially than is the presence of crying previous to these ages.

Success on this item is reported in 75 per cent of the normative S's of both sexes at LA 0-1, and in all subjects thereafter. The mean total norm is .25 years.

Similar results are noted for the feeble-minded S's, with 67.5 per cent succeeding at SA 0-1, and all thereafter. The mean N-FM difference is .08 years in favor of the normal subjects.



ITEM 1: *"Crows"; laughs.*

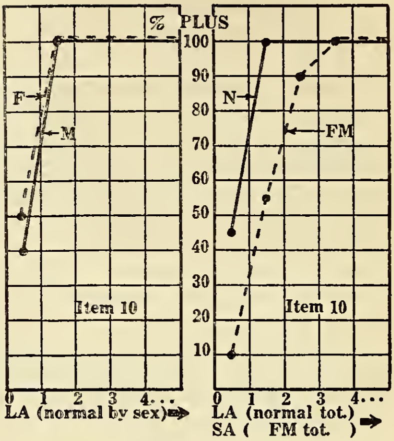
	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	.17	.25	-		N :	.17	.25	-	
F:	.17	.25	-		FM:	.24	.33	-	
D:		0		-	D :		-.08		-

ITEM 10. (LA .55) *"Talks"; imitates sounds.*

This is a simple extension of Item 1, in which babbling or inarticulate speech reveals higher expressive or imitative attempts toward communication which are something more than mere pleasurable vocalization. By this means the S "talks" to himself or to those about him. The latter commonly attach definite meanings to these sounds as indicating the S's desires or attitudes. We exclude here those various forms of crying which represent fretfulness, annoyance, anger or dissatisfaction, even though these may be just as useful socially for indicating the infant's desires. As in Item 1, we are more concerned with positive (essentially linguistic) means of communication which develop later stages of practical usefulness, whereas the negative tendency (annoyance cries) is ultimately abortive and becomes eliminated.

This item is passed by 40 per cent of the normative boys, and by 50 per cent of the girls at LA 0-1, and by all S's thereafter. The mean M-F difference is .10 years in favor of the girls. The mean total norm is .55 years.

The feeble-minded S's show delayed maturation in SA versus normative LA groups. The mean N-FM difference is .90 years in favor of the normal subjects.



ITEM 10: *"Talks"; imitates sounds.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	.67	.60	-		N :	.59	.55	-	
F:	.50	.50	-		FM:	1.39	1.45	.75	
D:		.10		-	D :		-.90		-

If at first it may seem that this item and Item 1 are not readily discriminable, this impression is contradicted by the consistency of the normative and validation data for the two items, from which clear distinctions are readily apparent.

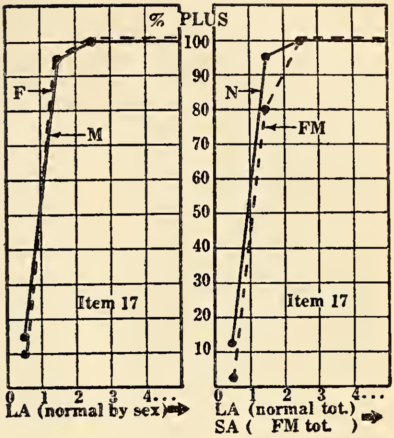
ITEM 17. (LA .93) *Follows simple instructions.*

In this item we turn from vocal expression to linguistic-aural comprehension.

The S comes when called, or goes short distances to particular places as directed. He points to specific objects in pictures when asked, or performs games of pantomime on verbal request (not merely by imitation). In general this item is satisfied if the S cooperates on verbal request in very simple activities without need of stimulation through gestures. The motor responses involved may be waived in the case of physical handicaps thereto, provided the examiner is satisfied that the linguistic element of the item is clearly satisfied.

Normative maturation appears rapidly in the second year of life. Except for a negligible half-score at LA 0-1 there is no sex difference. The mean M-F difference is .05 years in favor of the boys, CR .36. The mean total norm is .93 years, SD .29.

The feeble-minded S's closely parallel the normative maturation. The mean N-FM difference is .25 years in favor of the normal subjects, CR 2.48.



ITEM 17: *Follows simple instructions.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	.94	.90	.33		N :	.95	.93	.29	
F:	.97	.95	.25		FM:	1.11	1.18	.33	
D:		-.05		.36	D :		-.25		2.48

It may be noted here that, other things equal, verbal comprehension generally precedes verbal expression of like degree, as reading usually precedes writing of equal difficulty.

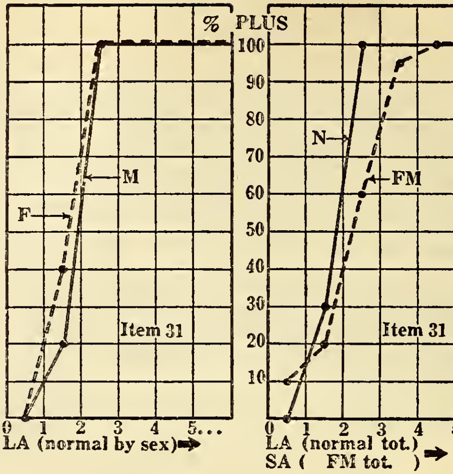
ITEM 31. (LA 1.70) *Uses names of familiar objects.*

This item follows Item 10 as the evolution of inarticulate to articulate speech. (It should be clear that we are not attempting to trace the psychological development of language, but only to employ certain points in that development as representing epochal social uses of speech.)

To satisfy the item, the S readily names a few familiar objects (not including persons) when these are presented materially or pictorially; he also calls for such objects by name or refers to them by name spontaneously. These "names" may be substitutes for, or corruptions of, dictionary words, but should be something more than poorly articulated sounds recognizable only as "baby-talk" by those intimately familiar with the S. The number of words employed need not be extensive, say a half-dozen or more, but the words should be clearly useful in assisting the S to enlarge his purposes.

Twenty per cent of the normative boys, and 40 per cent of the girls, succeed at LA 1-2, and all thereafter. The mean M-F difference is .20 years in favor of the girls. The mean total norm is 1.70 years.

The feeble-minded S's show delayed acquisition of this item in SA versus normative LA intervals. The mean N-FM difference is .45 years in favor of the normal subjects.



ITEM 31: *Uses names of familiar objects.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	1.88	1.80	-		N :	1.79	1.70	–	
F:	1.67	1.60	-		FM:	2.25	2.15	.97	
D:		.20		-	D :		-.45		-

This item is not to be confused with the naming of actual objects, or of objects in pictures, as required in some intelligence tests, and this comment applies to the other items of this category. We are concerned here with the habitual practical *use* of language rather than with *aptitude* for such expression. Hence the S should not be "tested" on these items as a substitute for reports on his habitual performance. It is comparatively easy to test for language attainment, but quite another thing to evaluate the everyday use thereof.

ITEM 34. (LA 1.95) *Talks in short sentences.*

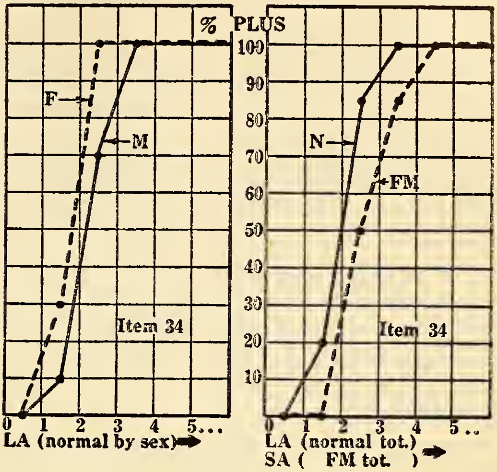
The child's vocabulary is extended not merely by the addition of single words but also by simple phrases and subject-object combinations. These ultimately emerge as short sentences or equivalent without much regard for polished grammatical structure. In other words, speech is elaborated at this stage from the use of single words to integrated word combinations which have the effect of sentence forms of speech.

To satisfy the item, the S uses speech which includes short sentences, meaningful phrases or subject-object combinations for simple conversation. The range of speech is defined as including a vocabulary of about 25 words or more, and the expressions are practically useful within these

limits to satisfy the child's social wants or to express his ideas, being something more than baby talk or mere repetitive speech, and revealing instead the child's practical progress in the adaptive use of language.

The performance matures normatively between LA's 1-3 years. The girls excel the boys by a mean difference of .50 years. The mean total norm is 1.95 years, SD .52.

The SA curve for the feeble-minded S's parallels the normative LA curve. The mean N-FM difference is .70 years in favor of the normal subjects, CR 3.61.



ITEM 34: *Talks in short sentences.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	2.17	2.20	.53		N :	1.96	1.95	.52	
F:	1.79	1.70	-		FM:	2.50	2.65	.67	
D:		.50		-	D :		-.70		3.61

ITEM 44. (LA 3.15) *Relates experiences.*

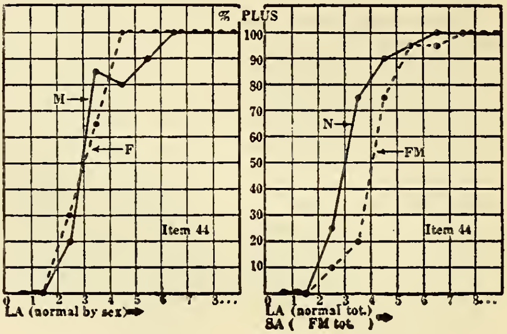
Speech develops rapidly from the use of isolated sentences and phrases to what might be termed paragraph speech.

The S now engages in continuous conversation, such as relating simple experiences, or telling (unprompted) simple short stories. This use of speech involves sequential ideation with coherence and relevant detail. Or negatively, the speech should not be incoherent, irrelevant or flighty, but

should reveal definite continuity of thought. The range of vocabulary will be extended above that of Item 34, and the language forms (including nouns, pronouns, verbs, adjectives, adverbs) will be somewhat elaborated, but the speech structure is less important than its useful significance.

This performance matures rapidly for the normative girls between LA's 2-4; the boys show some relative delay in reaching full success. The mean M-F difference is .20 years in favor of the girls, CR .43. The mean total norm is 3.15 years, SD .97.

The feeble-minded S's parallel the normative in later SA versus LA intervals. The mean N-FM difference is .90 years in favor of the normal subjects, CR 2.78.



ITEM 44: *Relates experiences.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	2.96	3.25	1.14		N :	3.00	3.15	.97	
F:	3.07	3.05	.75		FM:	4.05	4.05	1.03	
D:		.20		.43	D :		-.90		2.78

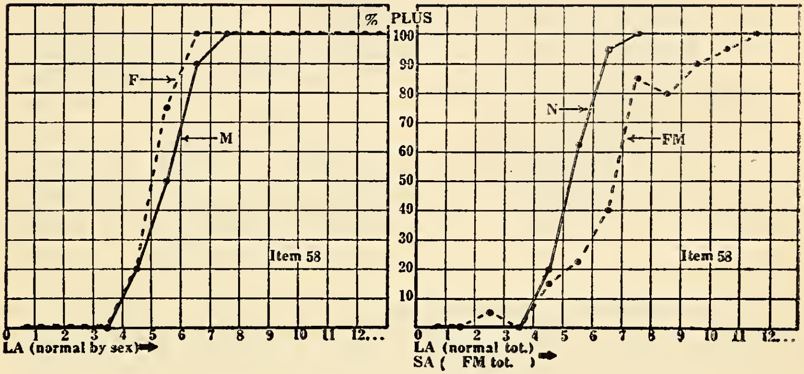
ITEM 58. (LA 5.23) *Prints simple words.*

In the literate social environment writing may be used as a substitute for vocal speech. This yields remote or delayed (engraved) communication, and consequently represents a significant social advance over talking. In the typical U. S. American environment the child soon learns to write or to print words, printing ordinarily preceding writing as an easier accomplishment. At this stage, the performance is of but limited social usefulness except as the forerunner of more extensive writing.

This early stage of writing is employed in this item as the legible printing or writing of the S's first name, or a few familiar words of three or four letters, not using copy. This may be done either on the child's own initiative or from dictation. Exact spelling is not essential, but the words should be legible and intelligible. They may be common words of 3 or 4 letters, or they may be proper names. The writing may be done with pencil, or crayon, or even by means of a child's typewriter.

This accomplishment matures normatively between LA's 4-7 years. The mean M-F difference is .35 years in favor of the girls, CR 1.00. The mean total norm is 5.23 years, SD .77.

The feeble-minded S's show relative SA delay and larger SD when compared with the normative S's. The mean N-FM difference is 1.45 years, CR 3.06.



ITEM 58: *Prints simple words.*

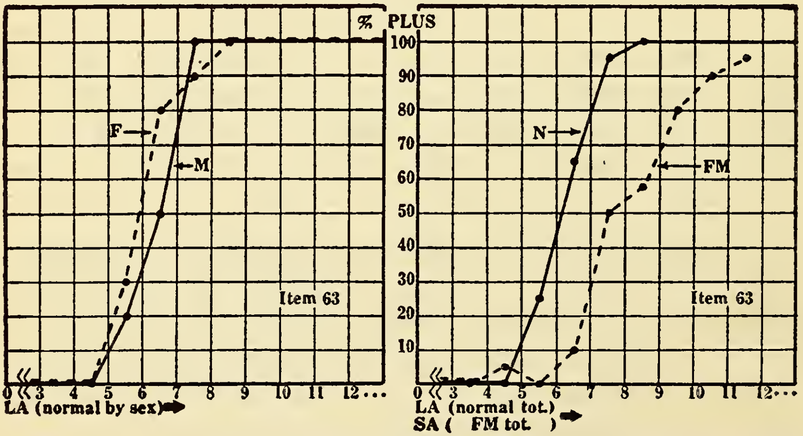
	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	5.50	5.40	.87		N :	5.21	5.23	.77	
F:	5.05	5.05	.61		FM:	6.72	6.68	1.92	
D:		.35		1.00	D :		-1.45		3.06

Performance on this item is to some extent influenced by instruction at home or at school. This factor is more apparent among the feeble-minded subjects who respond or aspire but poorly to academic instruction. Note that a majority of the normal S's succeed prior to LA 6, the usual age for beginning school, whereas the feeble-minded S's are noticeably delayed in spite of an advantage of about fifteen years in life age plus the benefits of intensive instruction. It has been said that the normal child *learns* whereas the defective must be *taught,* meaning that the former needs chiefly favorable opportunity, while the latter needs repeated systematic drill.

ITEM 63. (LA 6.15) *Uses pencil for writing.*

Script writing is for most persons genetically more difficult than print writing, but typically is readily acquired as the writing vocabulary increases in extent and complexity. In some instances, however, print writing (library script) is employed as a substitute for ordinary script, rather than as a forerunner. If print writing is developed in this manner it may be used as a substitute for script writing.

This evolution of writing also involves more extended vocabulary, longer words, more complex spelling and more involved meanings. It also typically employs more delicate means, such as lead pencil, or pen and ink, to replace crayons or slate and pencil. The typewriter may be substituted as a more complex mode of writing.



ITEM 63: *Uses pencil for writing.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	6.50	6.30	.73		N :	6.13	6.15	.80	
F:	5.90	6.00	.85		FM:	7.50	8.13*	1.71*	
D:		.30		.81	D :		-1.98		4.58

*100% assumed at SA 12-13

The item is satisfied if the S writes legibly with pencil or pen a dozen or more simple words, and at this stage does so with reasonably correct spelling. The words may be of three or four letters or more in length. They are to be written on the S's own initiative or from dictation, rather than from copy. The words may be written independently of grammatical structure.

The normative performance is about one year in advance of Item 58. Maturation is rapid and consistent between LA's 5-8 years for both sexes. The mean M-F difference is .30 years in favor of the girls, CR .81. The mean total norm is 6.15 years, SD .80.

The feeble-minded performances are markedly delayed in SA versus LA groups, with larger SD. The mean N-FM difference is 1.98 years in favor of the normal subjects, CR 4.58, in spite of more advanced life ages and more persistent instruction on the part of the feeble-minded subjects.

It may be well to repeat that we are not here concerned with the products of teaching as educational achievement, but rather with the use of literacy for socially helpful purposes. In the ordinary environment the degrees of literacy represented in this scale may easily be acquired independently of formal teaching. In fact the items have been so formulated as to avoid the need for formal education on the assumption that as the child feels the need for self-expression in reading and writing he can readily command the commonly available facilities for learning. This is not to deny, of course, that in some environments there is relatively little demand or opportunity for acquiring literacy, or that the environment may offer but a limited urge to the acquisition of these abilities. Nevertheless, under such conditions the person concerned is actually less competent than the person who has had the advantages of such environmental stimulation. We are most immediately concerned with the measurement of social maturity as such in the standard environment, rather than with explaining the lack of such maturation by apologizing for the environment. In short, we must distinguish between the *measurement* of social competence and the *interpretation* of such measurements. It is to be assumed that the examiner will always interpret the results of the measurement in relation to the handicaps which affect the person examined.

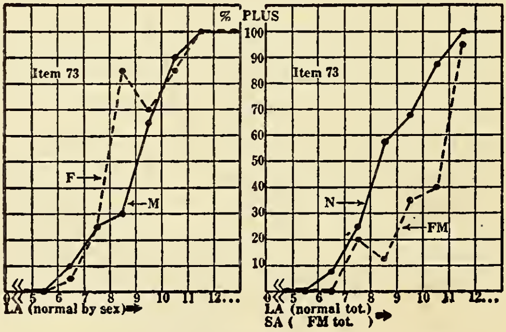
ITEM 73. (LA 8.55) *Reads on own initiative.*

Printing and writing typically succeed reading, whether by reading we mean the mere recognition of single words or the comprehension of words arranged in meaningful relations. Because of easier definition and scoring we have reversed this genetic sequence in formulating these items and have used the writing of simple words instead of their reading recognition. The later stages of reading are more readily defined and scored than the early stages, whereas the reverse is true for writing.

As a child learns to read he does so first for his own satisfaction or pleasure; the process of reading has but little social usefulness until about the fourth grade level of reading is accomplished. Since we are here concerned with the independent uses to which reading is put, we omit merely scholastic reading performed as school tasks. The examiner will discover (as we have) how difficult it is to evaluate the practical employment of scholastic attainment.

This item-performance matures steadily for boys between LA's 6-11; for girls the range is the same, but there is a marked spurt at LA 8 and a corresponding lapse at LA 9. The mean M-F difference is .50 years in favor of the girls, CR .75. The mean total norm is 8.55 years, SD 1.45.

The feeble-minded S's show delayed onset with later rapid rise in SA versus normative LA groups. The mean N-FM difference is 1.43 years in favor of the normal subjects, CR 2.94 (full success assumed for SA's above 11-12 and confirmed in total VTS sample except for one of 15 S's at SA 12).



ITEM 73: *Reads on own initiative.*

	Med.	*Mean*	*SD*	*CR*
M:	9.07	8.80	1.44	
F:	7.92	8.30	1.42	
D:		.50		.75

	Med.	*Mean*	*SD*	*CR*
N :	8.27	8.55	1.45	
FM:	10.68	9.98*	1.55*	
D :		-1.43		2.94

*100% assumed at SA 12-13

The item is expressed as the spontaneous and effective use of reading (at about 4th grade level of difficulty) for personal desires, needs or satisfactions. This is commonly expressed in the reading of informative notes, simple stories, signs, comic strips, movie titles, simple news items, and the like. Generally speaking, we may observe that the practical use of reading lags definitely behind the formal accomplishment of reading. In other words, the S is usually *able* to read at a higher level than he actually *does* read for his own satisfaction (witness for example the uninspired reading activities of most adults).

Reading success has until recently been generally employed as a basis for school-grade promotions. Assuming a child to enter school at LA 6, fourth-grade reading would typically be achieved at LA 10. But many normal children are above grade in reading achievement. Hence it is not a contradiction to find the *average* child in this standardization employing fourth-grade reading at LA 8.55. Likewise the well-recognized comparative delay in learning to read exhibited by feeble-minded subjects is in harmony with their use of such reading at mean SA 9.98 years.

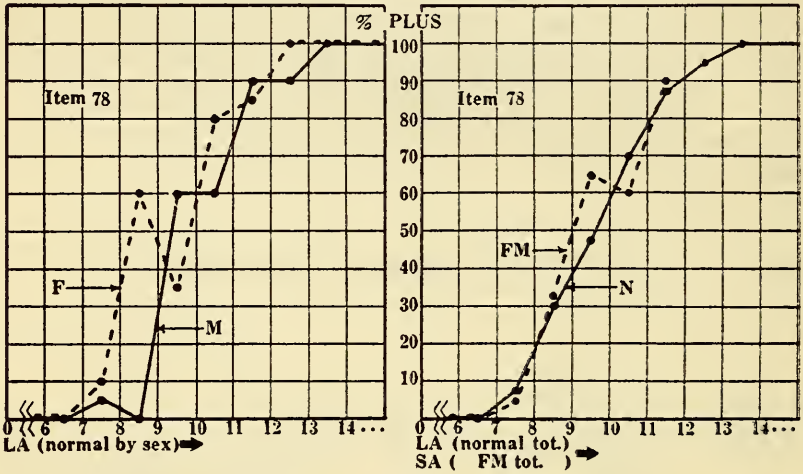
ITEM 78. (LA 9.63) *Writes occasional short letters.*

This is a practical extension of Item 63, revealing the use of writing for distant or delayed communication.

The item is defined as now and then writing brief letters to friends or relatives on the S's own initiative or following mild suggestion. This is done without material help from others as to content, formulation, ordinary spelling, addressing and mailing. A substitute activity is found in the writing of notes to immediate friends or the writing of simple instructions of equivalent scope and difficulty. The most difficult aspect of this item is the requirement that the S should address the envelopes (or notes) containing the communications and provide for mailing (or otherwise sending) the same. These details are included in order to take the item out of the field of mere educational achievement and convert it to practical social usefulness.

Normative success is achieved between LA's 7-13 years. There is a spurt for the girls at LA 8 followed by a lapse at LA 9, and plateaus for the boys at LA's 10 and 12. The mean M-F difference is .65 years in favor of the girls, CR .90. The mean total norm is 9.63 years, SD 1.57.

The performances of the feeble-minded S's in SA groups is closely similar to that of the normative subjects up to SA 11-12 (the highest SA affording uniform statistical comparisons). The median difference is .57 years in favor of the feeble-minded subjects. Assuming 95 per cent success for the feeble-minded at SA 12 and 100 per cent at SA 13 and thereafter gives a presumptive SA mean of 9.53 years, which is closely comparable to the LA mean (9.63). Or calculating a fragmentary mean between the 10 and 90 percentiles yields 9.24. Actually the fragmentary data beyond SA 11-12 show 100 per cent of full plus scores for all S's (N = 15, 7, 6, 4 and 5 respectively for SA's 12, 13, 14, 15 and 16).



ITEM 78: *Writes occasional short letters.*

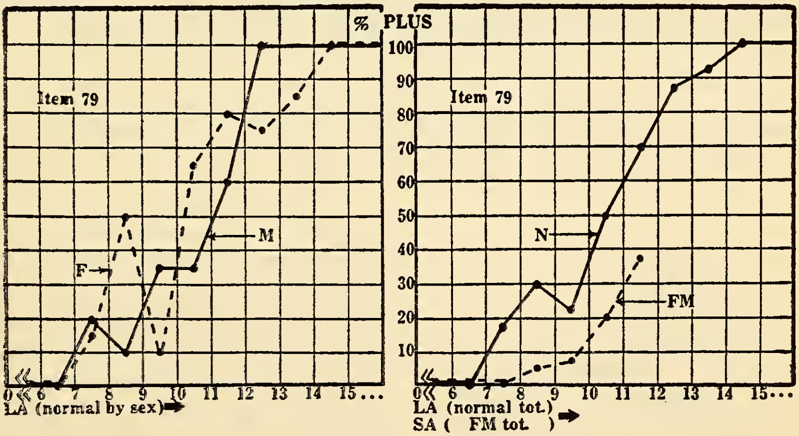
	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	9.33	9.95	1.40		N :	9.61	9.63	1.57	
F:	9.01 ?	9.30	1.65		FM:	9.04	-	-	
D:		.65		.90	D :		-		-

It is probable that the feeble-minded subjects have an advantage of "more occasion" or greater stimulation to write letters because of institutional residence and that this absence from home produces an incentive of sufficient weight to offset their otherwise presumptive inferiority on this item. It is possible, too, that more assistance was given these S's than the definition allows, or than the examiner elicited.

ITEM 79. (LA 10.30) *Makes telephone calls.*

In the typical U. S. American environment the prevalence of public or private telephones provides an almost universal and effective means of remote yet immediate communication. Here vocal speech reflects a facile degree of development, since the employment of the telephone is materially complicated by the fact that the conversation is not held vis-a-vis and involves such related aptitudes as using the telephone directory, recalling numbers, "pursuing" delayed calls and resolving various difficulties (e.g., no answer, wrong number, unlisted parties).

In addition to conducting a purposive conversation, the S is here required to employ the entire process of telephoning from looking up numbers (which involves a fairly difficult type of reading) and placing calls, to carrying on a conversation of some serious intent. The item does not require making long distance calls, and does not include the mechanical difficulties of using automatic or dial phones where such phones are not in common use. The item is not confined to the use of private or family telephones, but assumes that the S uses the telephone in general as a commonly available means of remote communication. In this the looking up of numbers and the placing of unfamiliar calls is apparently the most difficult requirement, which is only to some extent avoided by calling "information." The item assumes a relatively general use of the telephone rather than its minimum use as limited to familiar persons and places and to merely social calls.



ITEM 79: *Makes telephone calls.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	11.10	10.40	1.80		N :	10.50	10.30	2.09	
F:	9.37 ?	10.20	2.34		FM:	-	-	-	
D:		.20		.20	D :		-		-

Normative success appears between LA's 7-12 for the boys, and between LA's 7-14 for the girls, with a spurt for the latter at LA 8, followed by a lapse at LA 9, and a plateau at LA's 12 and 13. The mean M-F difference is .20 years in favor of the girls (but with higher SD), CR .20. The mean total norm is 10.30 years, SD 2.09.

The feeble-minded S's show delayed success in SA groups as compared with the normative LA maturation. This is only partly due to restricted opportunity in the institutional environment, which is somewhat offset by + F and + NO scores. Moreover, the feeble-minded maturation curve is fairly parallel to the normative up to the validation limit of SA 11-12 years. Since the curve does not reach median success, and no mean can be estimated, a valid N-FM comparison cannot be made. The fragmentary data beyond SA's 11-12 show 87 per cent of passes for SA 12 (N = 15), 93 per cent at SA 13 (N = 7), 100 per cent at SA's 14, 15 and 16 (N = 6, 4 and 5 respectively). These data are practically all based on " + NO" scores in view of environmental restriction. The curve based on these fragmentary data coincides with the normative curve at SA 12 and beyond.

Experience with this item indicates that it is fairly satisfactory in spite of the variations in opportunity for gaining successful experience. However, the item is not wholly appropriate since many examiners are prone to score the performance specifically rather than generally. Answering the telephone is of course much easier than placing calls, as calling familiar persons from familiar places is easier than calling strangers by public phone. Likewise, sociable use of the telephone is much simpler than business use. The corresponding use of telegraph was not considered because of relative infrequency of use.

ITEM 81. (LA 11.20) *Answers ads; purchases by mail.*

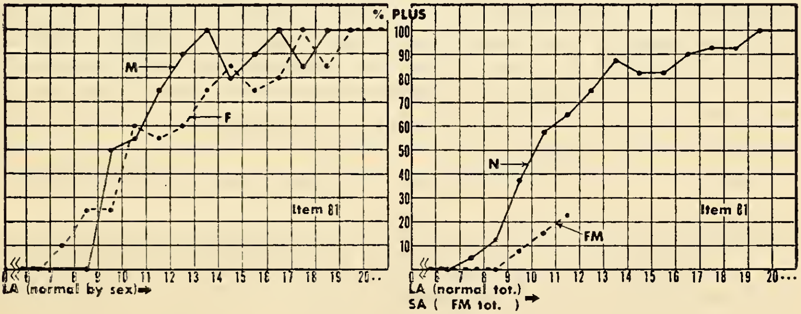
This extends Item 78 to written communication for commerce by mail. It represents a concrete employment of literacy for expanding the range, and perhaps increasing the efficiency of merchandising. It is also a means of enlarging one's field of information and capitalizes a well-recognized tendency of young adolescents and many adults to enlarge the sphere of contact and experience beyond local or personal resources. This is a somewhat whimsical recognition of the modern pre-adolescent susceptibility to current advertising of the box top, juvenile magazine or newspaper contest variety. Its significance is attested by the maturation data for LA's 8-14. But its value is reduced by the individual differences apparent after LA 13.

Yet the performance of this activity does seem to reveal a practical capitalization of literacy which has some social merit.

The item is defined as responding to newspaper, magazine, radio, or other advertising by mailing coupons, requesting samples, sending for informative literature, and purchasing from catalogs. The item, therefore, includes the same details as Item 78, and to some extent Item 73, but at a somewhat higher level of operation and with a significant modification in purpose.

Normative success shows fairly smooth and rapid development from LA 7 to LA 13, but with delayed fulfillment (presumably due to individual differences) between LA's 13-19. The relatively long tail produces a large SD and a noticeable difference between median and mean values. The mean M-F difference (note interlacing graphs) is .90 years in favor of the boys (with higher SD for the girls), CR .60. The mean total norm is 11.20 years, SD 3.21. The total mean versus total median difference is 1.07 years in favor of the median.

The performances of the feeble-minded S's show a marked tendency toward later acquisition in SA versus normative LA groups, but success reaches only the 23-percentile at SA 11-12. This difference is only partly due to environmental restriction or lack of stimulation, since +F and +NO scores serve to offset such lack of opportunity or occasion. Moreover there is no serious prohibition to such performance in the institution at which these subjects reside. The fragmentary data beyond SA 11-12 show 40 per cent at SA 12 (N=15), 43 per cent at SA 13 (N=7), 67 per cent at SA 14 (N=6), 100 per cent at SA 15 (N=4) and 80 per cent at SA 16 (N=5).



ITEM 81: *Answers ads; purchases by mail.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	9.50	10.75	2.59		N :	10.13	11.20	3.21	
F:	10.21	11.65	3.67		FM:	-	-	-	
D:		-.90		.60	D :		-		-

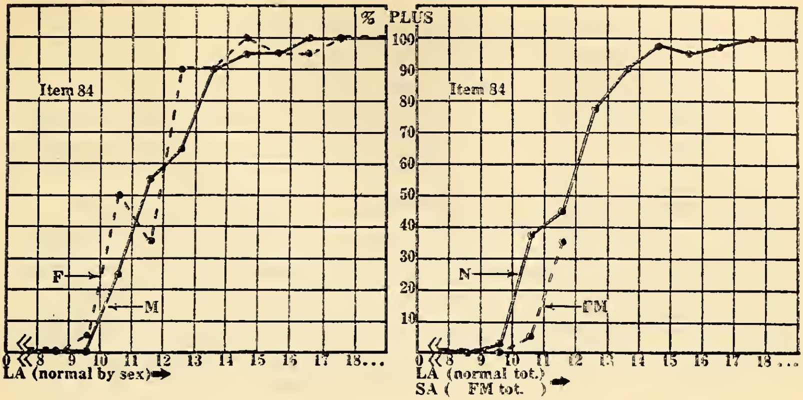
ITEM 84. (LA 11.58) *Enjoys books, newspapers, magazines.*

This item requires about sixth-grade literacy as compared with fourth-grade for Item 73.

The item is defined as the useful application of reading achievement for practical information or personal enjoyment in reading sources such as story or news columns in newspapers, magazines, books of fiction, adventure, travel, and so on. There is some presumption that this degree of reading promotes the extension of self-education as well as personal pleasure. The item assumes that ample reading material is generally accessible either at or outside the home, and further assumes some inclination on the part of the S to seek out such reading opportunities rather than merely to respond to them when readily available. The item may also include more extended reading of catalogs than is called for by Item 81, more serious reading of advertisements, and other socially useful reading activities.

Performance on this item matures normatively between LA's 10-13, with one partial success at LA 9 and four partial failures between LA's 14-17 years. The mean M-F difference is .35 years in favor of the girls, CR .46. The mean total norm is 11.58 years, SD 1.63.

The feeble-minded S's show delayed success in SA versus normative LA groups, reaching the 35-percentile at SA 11-12. The fragmentary data beyond SA 11-12 show 47 per cent of passes at SA 12 ($N = 15$), 86 per cent at SA 13 ($N=7$), and 100 per cent at SA's 14, 15 and 16 ($N=6$, 4 and 5 respectively).



ITEM 84: *Enjoys books, newspapers, magazines.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	11.33	11.75	1.55		N :	11.65	11.58	1.63	
F:	11.14 ?	11.40	1.69		FM:	-	-	-	
D:		.35		.46	D :		-		-

The normative performance on this item represents sixth-grade capitalization of reading achievement for social purposes, which is not attained by all subjects until LA 17 years. Even the highest grade morons seldom succeed in academic subjects beyond the 6th school grade. This is confirmed by the relatively small numbers represented below SA 12, and even these are apparently scored generously as to the useful outcome of such reading. Eighth-grade academic success represents about the average school attainment for most people of adolescent years and beyond.

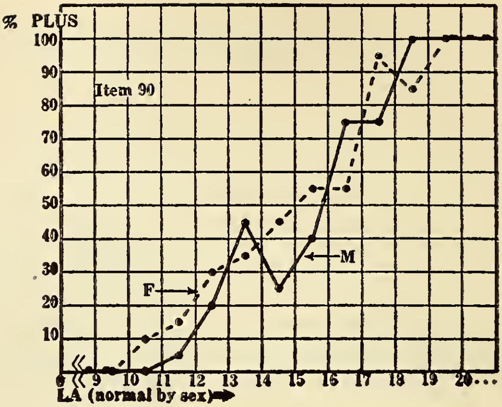
ITEM 90. (LA 14.95) *Communicates by letter.*

This item extends Item 78 by requiring more serious purpose and more serious content of written communication.

The item includes the writing of substantial business or social letters to persons other than (or in addition to) personal friends, the exchange of letters for giving and receiving of serious information, the giving or acknowledging of serious instructions, and the exchange of significant personal or general news. The item therefore involves something more than merely friendly or perfunctory "chit-chat" correspondence and puts a premium on the use of corresponding for mature purposes. It also represents a more sophisticated extension of Item 81.

The normative progression for this item shows a fairly steady though not very rapid evolution between LA's 10-19 years. The mean M-F difference is .40 years, in favor of the girls, CR .33. The mean total norm is 14.95 years, SD 2.59.

The feeble-minded S's (graph omitted) show only one partial success (at SA 10) which may be a mistaken or over-generous score.

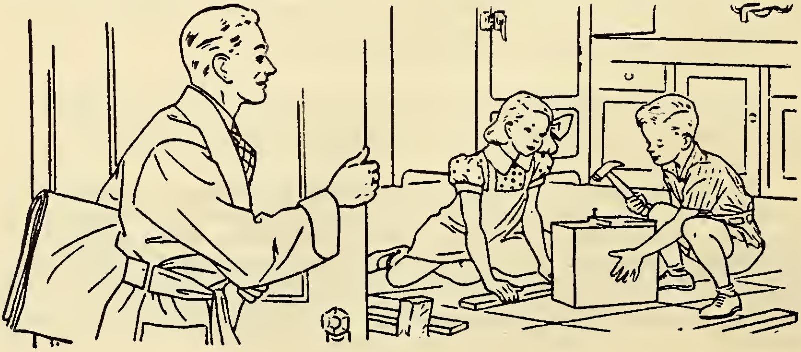


ITEM 90: *Communicates by letter.*

	Med.	*Mean*	*SD*	*CR*
M:	15.79	15.15	2.33	
F:	15.00	14.75	2.81	
D:		.40		.33
Tot.:	15.64	14.95	2.59	

This item normatively represents about 8th-grade or early high-school level of scholastic attainment. The fact that it is ultimately passed by all of the normative S's, many of whom have not had formal schooling beyond the 8th grade, shows good capitalization of writing for practical purposes. Similarly, the absence of success on this item for the feeble-minded subjects confirms the observation that few of them reach 8th-grade attainment and still fewer make practical use of such attainment.

ITEM 91. (LA 15.35) *Follows current events.*

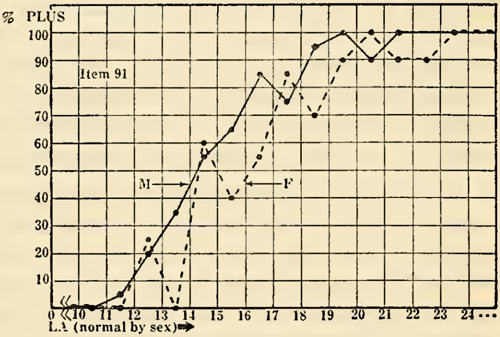


This item extends Item 84. It involves mature reading, serious conversation, intelligent use of radio, attendance at lectures, and so on as a means of keeping well-informed. The level of activity involved is presumed to be above eighth-grade equivalent as to content and difficulty.

The item is formulated so as to include the intelligent discussion of general news, national and local sports, scientific and cultural developments, political and economic progress, or general events of wide interest. It further assumes continued interest in such news and the use of information so gained for critical evaluation or controversial discussion. The item therefore assumes that the S keeps himself informed in various ways on matters of broad social interest which in the long run increase his value as a citizen or have some serious bearing on his affairs and community welfare. Performance obviously should rate well above petty news-mongering.

The normative maturation progresses rather regularly for the boys, and by serrated stages for the girls, between LA's 12-19, with one partial success at LA 11 and three failures after LA 19. The mean M-F difference is 1.20 years in favor of the boys, CR .91. The mean total norm is 15.35 years, SD 2.86. The mean versus median difference is 1.04 years in favor of the median.

The feeble-minded subjects show no success on this item up to SA 11-12. The fragmentary data beyond SA 11 show 1 success at SA 12 (N=15), 1 at SA 13 (N=7), 1 at SA 14 (N=6), 1 at SA 15 (N=4) and 4 at SA 16 (N=5).



ITEM 91: *Follows current events.*

	Med.	*Mean*	*SD*	*CR*
M:	14.25	14.75	2.51	
F:	15.17 ?	15.95	3.06	
D:		-1.20		.91
Tot.:	14.31	15.35	2.86	

The definition of this item would lead one to expect its maturation as an average adult item. However, it is readily passed by high-school students. Among adults of less than 10th grade attainment it reflects a good capitalization of education or a form of communication which functions rather independently of formal instruction. This is to be desired, since otherwise formal schooling would constitute a specific environmental advantage to some subjects and its lack a handicap to others.

Summary. In summarizing this category we may profitably collect the comments scattered throughout the items. We are not here directly concerned with the psychological development of language nor with specific educational achievement, but rather with the social evolution of language use and with various means and significant levels of communication. The early items deal with the elementary genesis of immediate conversation while the later items deal with rather general and (in our society) easily acquired employment of reading and writing for remote, delayed and recorded speech.

The use of literacy has here been conceived as relatively independent of need for formal schooling since there are many non-scholastic avenues by means of which literacy may be acquired. Likewise, the normal sequences of reading and writing have been ignored in favor of a progression that indicates the most readily evaluated evidences of maturation in communication. These progressions as to literacy have been only loosely related to school grade attainment. The *use* of literacy is observed as coming either before, after, or independently of equivalent school-grade standing. Successful advance in education, whether formally or informally obtained, and with due regard for economic factors, is itself one expression of competence which both yields and reflects other social assets.

Our first formulation of the items involving literacy was based on school achievement, whether formally or informally accomplished, and especially on the essential relation of reading and writing to other forms of educational attainment. These early formulations were seriously revised because of the widespread differences encountered in educational attainment and the recognition of the fact that the average adult has not gone beyond the eighth grade in formal academic schooling. Further consideration of these questions also revealed a rather weak capitalization of educational advantages for social purposes, a fact so obvious as to constitute a major professional educational problem in conceiving as well as accomplishing the social objectives of public education.

Another difficulty in the communication items is found in the environmental limitations which surround education and the fact that the education most commonly referred to is still called *compulsory* education. The self-initiated educational attainments are even unjustly disparaged in contrast with achievements gained from formal schooling. The items in this category therefore as applied to environments and persons of limited educational opportunity cannot but reflect the social consequences of such limitation, for there seems to be a definite correlation between social progress and the level of man's education, or even the extent to which education is a special privilege. It would therefore seem that not too much allowance should be made for lack of educational opportunity in measuring social competence; the evaluation of that competence in terms of the individual's undeveloped aptitudes as compared with his actual performances requires realistic orientation.

The professional educator and many examiners may wonder why we have not tapped such other educational disciplines as arithmetic, geography, history, literature, the sciences, and so on. Our reason for this is that we encountered insurmountable difficulties in obtaining information as to how these disciplines are socially capitalized. Thus even so fundamental a subject as arithmetic seems to be developed in school to much higher levels than the subsequent purposes to which this is put. Consequently we were obliged to incorporate such evidence indirectly in other items. We have even encountered serious difficulty in determining the extent to which children read and write; either little use is made of these accomplishments or the informants are not intimately acquainted with the manner or extent to which educational achievements are capitalized.

The social consequences of education beyond the elementary three R's are observed chiefly in occupational pursuits and in general intellectual culture. The subject-matter of the educational branches beyond about the 6th school grade will therefore be found capitalized in the occupational items beyond Item 98, in the self-direction items beyond Item 99 and in the socialization items beyond 103. This affords indirect evaluation of scholastic knowledge by employing the more general situations in which such knowledge is socially capitalized. We do not overlook the rather personal advantages of education for enriched living, but such outcomes are not strictly relevant for present purposes.

It has also been difficult to include the use of specialized *means* of communications (e.g., telegraph, typewriter, shorthand and other recording devices, publicity and advertising mediums, scientific and mathematical symbolism) because of environmental, scholastic and economic differences. Moreover, while these greatly facilitate they do not entirely replace more natural, more fundamental, more readily available and therefore more universal modes of expression.

Some comment may also be offered regarding the use of these items with handicapped subjects such as the blind, the deaf, the crippled and the feeble-minded. The primary handicap of the feeble-minded is constitutional mental subnormality, in respect to which the educational handicap is a secondary consequence. The deaf are handicapped vocally and aurally and this indirectly produces some linguistic handicaps even when means of linguistic expression (manual signs, lip-reading, touch reading, and so on) are formally acquired. The communication difficulties encountered by blind, crippled and neurologically affected subjects are self-evident and must be taken into account at face value and appraised accordingly. The blind and the deaf may be competent among themselves in language use and devices. Yet they may be incompetent in relation to the hearing and the sighted, and vice versa.

These principles become extended when related to foreign languages or to regional differences in language which sometimes result in embarrassments or inadequacies in the absence of interpreters. Similar difficulties are encountered in the "language" of money. (We are reminded of the provincial New Yorker who expected to be annoyed in Rome, patronized in Paris, confused in Moscow and so-sorried in Tokyo, but thought that he had a right to get on smoothly in London and Chicago!)

Sex differences for items in this category are negligible as to amounts and low as to reliabilities. The highest CR is 1.00 (Item 58) with M-F difference of .35 years (one-fourteenth of its base). The largest M-F difference is 1.20 years (Item 91) with CR .91 (D one-twelfth of its base). However, such slight differences as are apparent are in favor of the normative girls on 12 of the 15 items.

In contrast, the N-FM differences are relatively large and reliable for nearly all the items. This is in accord with the well-recognized linguistic and literate inferiority of the feeble-minded in spite of advanced life age and intensive instruction—an observation which adds weight to the significance of this category for social competence. The CR's for the six items for which the data yield standard computations range from 2.48 to 4.58 (Items 17, 34, 44, 58, 63 and 73). The corresponding D's range from .25 years (Item 17) to 1.98 years (Item 63), are relatively large in proportion to their bases, and are all in favor of the normative subjects. The last 6 of the 15 items do not yield FM SA means.

SUMMARY of ITEM DATA

COMMUNICATION CATEGORY

(From Tables 2 and 9)

	Normative by sex						Normal vs Feeble-Minded					
Item	M	F	SD_m	SD_f	D	CR	N	FM	SD_n	SD_{fm}	D	CR
1	.25	.25	—	—	0	—	.25	.33	—	—	—.08	—
10	.60	.50	—	—	.10	—	.55	1.45	—	.75	—.90	—
17	.90	.95	.33	.25	—.05	.36	.93	1.18	.29	.33	—.25	2.48
31	1.80	1.60	—	—	.20	—	1.70	2.15	—	.97	—.45	—
34	2.20	1.70	.53	—	.50	—	1.95	2.65	.52	.67	—.70	3.61
44	3.25	3.05	1.14	.75	.20	.43	3.15	4.05	.97	1.03	—.90	2.78
58	5.40	5.05	.87	.61	.35	1.00	5.23	6.68	.77	1.92	—1.45	3.06
63	6.30	6.00	.73	.85	.30	.81	6.15	8.13*	.80	1.71*	—1.98	4.58
73	8.80	8.30	1.44	1.42	.50	.75	8.55	9.98*	1.45	1.55*	—1.43	2.94
78	9.95	9.30	1.40	1.65	.65	.90	9.63	—	1.57	—	—	—
79	10.40	10.20	1.80	2.34	.20	.20	10.30	—	2.09	—	—	—
81	10.75	11.65	2.59	3.67	—.90	.60	11.20	—	3.21	—	—	—
84	11.75	11.40	1.55	1.69	.35	.46	11.58	—	1.63	—	—	—
90	15.15	14.75	2.33	2.81	.40	.33	14.95	—	2.59	—	—	—
91	14.75	15.95	2.51	3.06	—1.20	.91	15.35	—	2.86	—	—	—

SELF-DIRECTION

> *"Say Pop, how soon will I be old enough*
> *to do just as I please?"*
> *"I don't know, Son; nobody has ever lived*
> *that long yet."* —Unidentified

The concept of social competence as herein set forth places heavy emphasis on personal independence and the exercise of individual responsibility. The principal component of such self-sufficiency is self-direction. It is to a greater or less degree present at the core of all items of the Scale and corresponds in principle to Spearman's *g* factor in general intelligence. However, some behavior so specifically reveals this factor as to warrant a special category of self-direction items.

No doubt our point of view has been specifically influenced by experience with the feeble-minded. Viewing mental deficiency in terms of its effects, weakness in self-direction is a conspicuous characteristic of the feeble-minded, and one which colors all their social performances. Since this scale was originally designed to measure the social competence of the feeble-minded, the emphasis on self-direction throughout the Scale as a whole is readily appreciated.

In the early maturation of social competence, self-direction appears as self-help and these modes of behavior have already been presented. In the locomotion category, self-direction is again apparent but with a different content; and similarly for the other categories of the Scale. But a definite group of items may now be formulated which reveal self-direction somewhat more specifically. These include items which do not seem to fit in very well in other groupings from the point of view of logical arrangement.

The period of adolescence is specially characterized by the desire for social freedom in personal conduct. This expresses itself in a gradual breaking away from authority, which is followed in early adulthood by the assumption of responsibility and authority for others. This is most clearly expressed in the handling of money, in the looking after all of one's needs, and finally in performing these same offices for others.

It is therefore not surprising that specific self-direction items appear principally in the adolescent and adult age-periods.

Nor should it be surprising if failure on these items is prevalent among the feeble-minded both in and out of institutions since the mentally deficient seldom reach, and never by definition exceed, the adolescent overall level of social maturation. Some feeble-minded at large in the community have complete freedom in these respects, but they perform these items with such limited success as to reveal their feeble-mindedness in these very ways.

In scoring these items the examiner will therefore need to be careful to pay special attention to the manner in which, and the conditions under which, these items are performed since in them will be found a definite reflection of that prudent foresight and successful management of one's own affairs which is essential to all acceptable definitions of social adequacy.

The 14 items in this category extend from LA 5 to LA 25+, with 1 each at years V, IX, XI and XII, 3 at XV-XVIII, 4 at XVIII-XX, 2 at XX-XXV, and 1 at XXV+. That is, 10 of the 14 items cluster around late adolescence and early adulthood. Two series are apparent, one with regard for money and purchasing (Items 60, 76, 87, 94, 95, 100, 102, 105 and 112), the other dealing with self-controlled behavior (Items 83, 93, 97, 99 and 101). Two of the last-mentioned (Items 93 and 99) might have been placed in the locomotion category, but seem more suitably oriented here. Item 97 is somewhat apart from the others in scope.

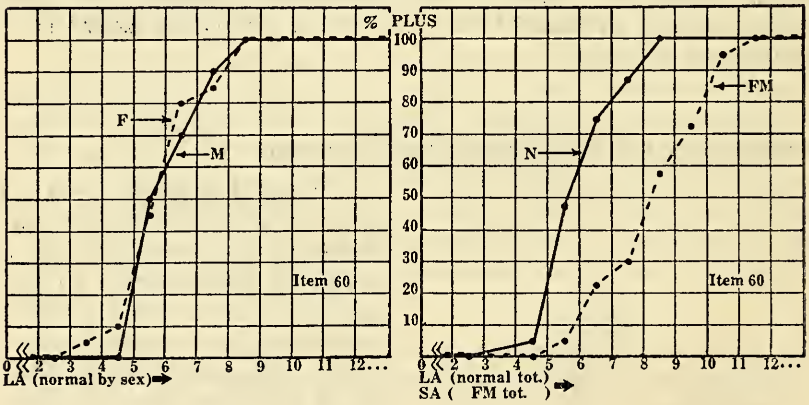
ITEM 60. (LA 5.83) *Is trusted with money.*

Most societies put a special premium on the acquisition and conservation of material possessions. In our culture this is most readily expressed in the careful use of money. Economic responsibility is therefore a major consideration in the later stages of social development. An early evidence of this responsibility is observed when the individual is trusted with small sums of money at the messenger level.

Here the S is deemed to be careful of money when sent to make payments or explicit purchases. At this level it is not necessary that the S be able to make change, but only that he be responsible in the care of money and in using it as directed. Since money is such a general medium of obtaining satisfaction, it offers obvious temptations and its careful use involves a definite degree of trustworthiness.

The normative data show rapid and steady progression between LA's 4-8 years, without appreciable sex difference. The mean M-F difference is .15 years in favor of the girls, CR .28. The total norm is 5.83 years, SD 1.12.

The feeble-minded S's show striking retardation in SA versus normative LA groups. The mean N-FM difference is 2.35 years, CR 5.21. There is, of course, some but not complete prohibition to this performance in the institutional environment of these subjects, but this is evident only at those SA's where the value of money is not properly regarded, and is somewhat offset by the use of +F and +NO scores. That the item reaches full success at SA 11-12 is evidence of this and of the dependence of such success on SA itself. Indeed, this is the only item in this category on which the feeble-minded S's in our item validation sample ultimately attain 100 per cent of passes. Fragmentary data for S's beyond SA 11-12 are included in the item discussion where pertinent, but are without statistical import except as trends. In some instances N-FM median differences are noted when the SA ogive for feeble-minded S's below SA 11-12 reaches or passes the 50-percentile but without attaining the 100-percentile. Such comparisons should be considered as only suggestive rather than dependable.



ITEM 60: *Is trusted with money.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	5.50	5.90	1.00		N :	5.59	5.83	1.12	
F:	5.64	5.75	1.23		FM:	8.23	8.18	1.62	
D:		.15		.28	D :		-2.35		5.21

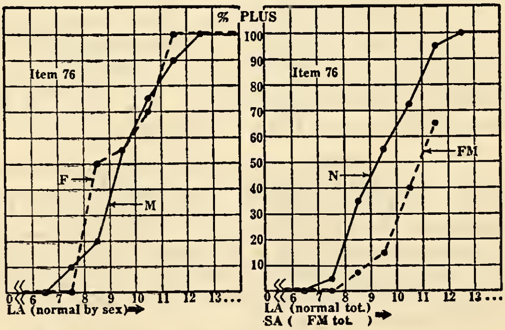
ITEM 76. (LA 9.38) *Makes minor purchases.*

This extends Item 60 to the actual expenditure of money, as in the purchasing of useful articles, especially those involving some choice and discretion as to their nature and cost.

In this item the S (1) exercises some discreet choice in the purchase of useful minor articles and safeguards them as the equivalent of money, (2) displays care and judgment in the handling of money, and (3) makes correct change in small amounts (say about one dollar or more). In making such minor purchases (e.g., school supplies, toilet articles, trinkets, little gifts) the S is relatively independent or can be relied upon to follow instructions of a more serious extent than those involved in Item 60, and which may involve judgment in carrying out instructions. In performing this item the money involved may be the property of the S himself (allowance, gifts, earnings), or may be entrusted to him as the agent for others.

This performance matures normatively between LA's 7-12 for the boys, and 8-11 for the girls. The mean M-F difference is .25 years in favor of the girls, CR .40. The mean total norm is 9.38 years, SD 1.34.

The feeble-minded S's show delayed maturation in SA versus normative LA intervals, reaching 65 per cent of success at SA 11-12. The median N-FM difference is 1.65 years in favor of the normal subjects. A satisfactory mean SA cannot be calculated. The fragmentary data beyond SA 11-12 show 90 per cent at SA 12 (N=15), 86 per cent at SA 13 (N=7), 100 per cent at SA 14 (N=6), SA 15 (N=4) and SA 16 (N=5). These data are only slightly influenced by +NO and +F scores. The comment on Item 60 applies with equal weight to this item.



ITEM 76: *Makes minor purchases.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	9.36	9.50	1.37		N :	9.25	9.38	1.34	
F:	8.50	9.25	1.31		FM:	10.90	-	-	
D:		.25		.40	D :		-		-

ITEM 83. (LA 11.45) *Is left to care for self or others.*

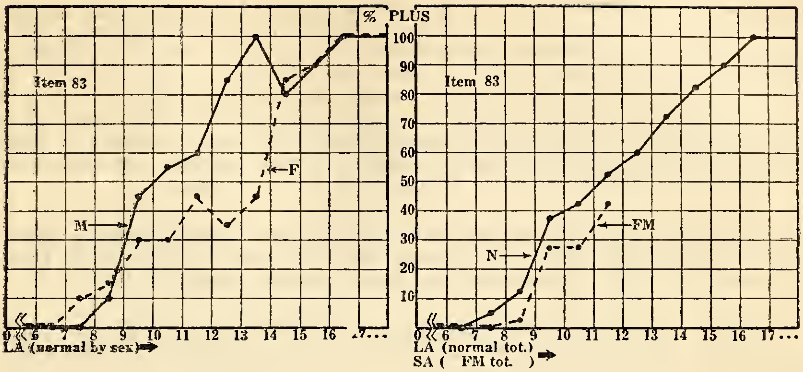
This is one of a group of items involving accountability for personal safety and discreet behavior when freed from the supervision of elders for protracted periods. On first consideration this appears to be a special case of "locomotion" and the examiner may be surprised to find that contrary to first expectation it represents a higher stage of performance than Item 77 (Goes about home town freely). This is explained in part by the fact that in the locomotion category the individual has definite behavior goals, and the absorption of interest in these tends to make their performance simpler than does remaining in a given place. In other words, when the individual is left to his own devices for protracted periods without supervision the trustworthiness involved seems to be of higher degree. The difficulty on this item is increased by the assumption that the S may not only be left to care for himself, but may be made responsible for the supervision of others independently of adult social contacts and consequently is relied on in case of emergency.

The item is satisfied if the S is sometimes left alone, or on his own responsibility, for an hour or longer at home or at work and in so doing is successful in directing his own behavior, or is responsible for the behavior of others who may be left in his care. It is assumed that in so doing the S is resourceful regarding such emergencies (fire, callers, accidents, phone calls) as may arise and is trustworthy in respect to his personal conduct, that is, does not get into difficulties under these circumstances. Consequently this apparently simple item is seen to involve not only responsibility for the S's own actions, but his responsibility in relation to events which he might or might not initiate and in respect to which his behavior is not controlled or assisted by others.

This performance shows rather slow and somewhat irregular maturation, with consequently high SD, between LA's 7-16. There is a sex difference of from two to four years between LA's 10-14 which presumably reflects the greater hazards, or fear of hazards which attend girls in the period just before adolescence. The mean M-F difference is 1.40 years in favor of the boys, CR 1.13. The mean total norm is 11.45 years, SD 2.72.

The feeble-minded S's are not markedly different from the normative in success on this item in SA versus LA groups up to SA 11-12. This may be due to more generous scoring since the item would be more readily passed in the institutional environment because of closer social contacts. Moreover, most of these successes are +F and +NO scores which on this item are rather difficult to assign. Few institutionalized feeble-minded children or adults are left alone or to care for others except under unusual circumstances.

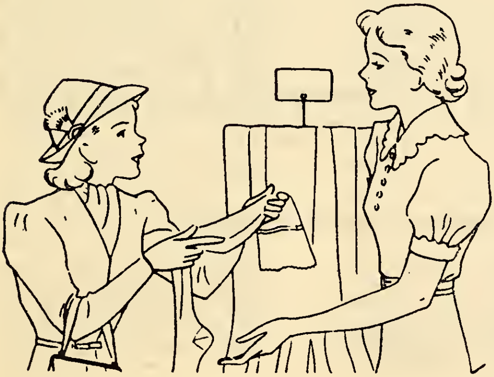
The progression of the feeble-minded S's does not reach the median within the range of the validation. Hence conventional central tendency comparisons cannot be made. The fragmentary data beyond SA 11-12 show 67 per cent at SA 12 (N=15), 100 per cent at SA 13 (N=7), 83 per cent at SA 14 (N=6) and 100 per cent for SA's 15 and 16 (N=4 and 5).



ITEM 83: *Is left to care for self or others.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	10.00	10.75	2.33		N :	11.25	11.45	2.72	
F:	13.63	12.15	2.91		FM:	-	-	-	
D:		-1.40		1.13	D :		-		-

ITEM 87. (LA 13.00) *Buys own clothing accessories.*

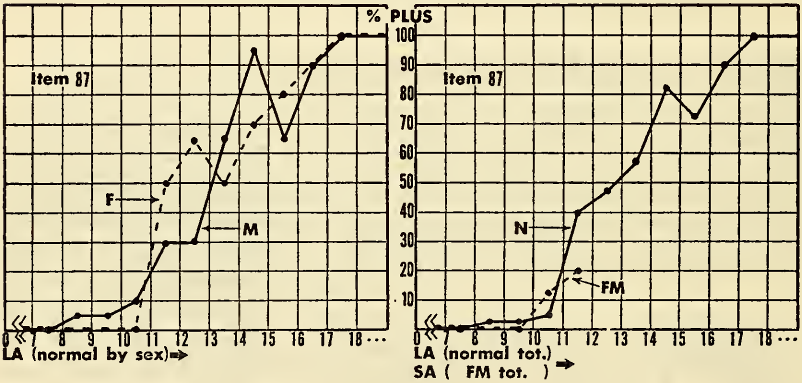


This extends Item 76, involving wider choice and discretion, larger sums and more responsible use of money, and increased responsibility for decisions. The item has been made specific to the purchase of articles of clothing in order to avoid the variable complications encountered in the general expenditure of money, the purchase of clothing being a relatively universal type of expenditure.

In satisfying this item the money used may be either supplied or earned, or the purchases may be made on authorized credit. The articles purchased are defined as minor articles of personal clothing such as ties, ribbons, undergarments, gloves, shoes, and so on, not including coats, suits, dresses, hats. The selections are presumed to be made with due regard to suitability, cost and fit. The S is therefore required to have some judgment of values in respect to prices, materials, quality, style, and in general to "get his money's worth." The purchases are also presumed to be appropriate to the S's financial resources or social status, bearing in mind that one person's necessity might be another's extravagance, and that thrift is relative to the S's station in life as well as to his age.

The normative maturation shows some minor lapses within a generally consistent progression. The mean M-F difference is .10 years in favor of the girls, CR .09. The mean total norm is 13.00 years, SD 2.29.

The feeble-minded S's reach 20 per cent of successes at SA 11-12. Among the scattered subjects beyond this limit success continues to progress with SA in +F, +NO and full plus scores. Hence the data reveal the difficulty of the item rather than lack of opportunity for expression. The fragmentary data beyond SA 11-12 show 10 per cent at SA 12 (N=15), 29 per cent at SA 13 (N=7), 75 per cent at SA 14 (N=6), 75 per cent at SA 15 (N=4) and 100 per cent at SA 16 (N=5).



ITEM 87: *Buys own clothing accessories.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	13.07	13.05	2.32		N :	12.75	13.00	2.29	
F:	12.50 ?	12.95	2.27		FM:	-	-	-	
D:		.10		.09	D :		-		-

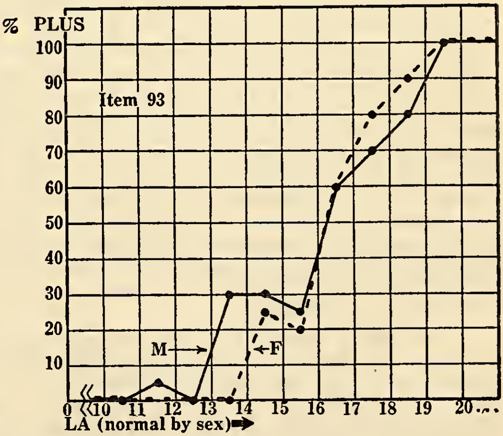
Among the normative S's individual differences are evident as to personal versus parental dominance. This produces the minor irregularities of the normative curve, but progressive maturation ultimately obliterates these differences.

ITEM 93 (LA 16.13) *Goes out unsupervised daytime.*

This extends Item 83, and the same general principles apply. Again at first thought it seems surprising that this item should standardize at a later age than Item 92, or even Item 77, in the locomotion category. The item might of course, with Item 99, be included in the locomotion category for examination purposes.

The normative progressions are smooth and rapid between LA's 15-19 years following "false starts" at LA's 13 and 14. The mean M-F difference is .25 years in favor of the boys, CR .27. The mean total norm is 16.13 years, SD 1.96.

None of the feeble-minded S's below SA 12 succeed on this item. The fragmentary data beyond SA 11-12 show a small scattering of S's with + F, + NO, plus-minus or full plus scores. Of course, many feeble-minded subjects outside of institutions obtain intermittent success on this item, and some attain full success. However, the ever-present marginal nature of this success in terms of prudent behavior is one indication of such non-institutional high-grade mental deficiency. We are of course here referring to the genuinely feeble-minded and not to S's of mere intellectual subnormality, or the so-called subcultural normal persons, who superficially resemble the feeble-minded on verbal mental tests (see abstract p. 466 on the inheritance of social competence).



ITEM 93: *Goes out unsupervised daytime.*

	Med.	*Mean*	*SD*	*CR*
M:	16.21	16.00	2.31	
F:	16.25	16.25	1.52	
D:		-.25		.27
Tot.:	16.23	16.13	1.96	

The item is defined as leaving home during the daytime without accounting for one's movements in advance except as a matter of courtesy. In this the S displays prudent behavior with respect to the opportunities for misconduct inherent in the related activities.

In this item the S is not merely moving from place to place with fairly definite absorption of interest in definite objectives, but is left to his own devices without specific reference to locomotion. Consequently there is broader opportunity for getting into trouble, greater need for trustworthiness, more occasion for resourcefulness in meeting emergencies, and a larger measure of self-direction and judgment. This item therefore, like Items 83 and 99, puts more of a premium upon discreet conduct and wholesome interests than do the locomotion items. Once more, we do not insist on the categorical segregation of items as having more than expository value. Yet there do seem to be significant behavior conditions for some items which at first thought appear to be integral with others (cf. discussion introducing Item 83, p. 214).

ITEM 94. (LA 16.53) *Has own spending money.*

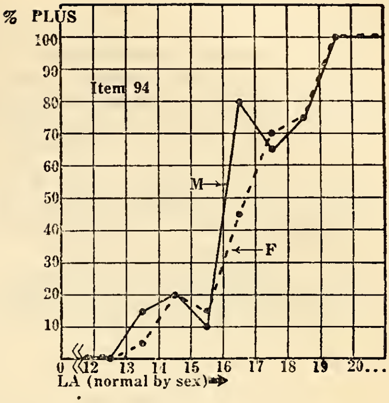
This enlarges the intent of Item 60 and is somewhat more generalized in scope than Items 76 and 87.

In performing this item the S is presumed to have independent and continuing control of small sums of money which he regards as his own whether earned or received as gifts or allowance. The S uses this money with reasonable discretion for satisfying fairly serious personal needs rather than for the gratification of merely personal or immediate pleasures. The amount of money is of some moment (a dollar or more per week), and must be regarded in relation to the social or economic status of the S. If the amounts are too small, then there is not sufficient opportunity for the exercise of discretion or the satisfaction of genuine needs as opposed to "candy" money. Moreover, the amount of money in relation to its intended uses somewhat arbitrarily influences the age location of the item. Children not infrequently have smaller sums of money and, in some instances, even larger amounts than one dollar per week as conventional allowances. This is usually expended at earlier ages rather ingenuously for indulgences rather than for necessities.

The item is superior to Item 87, and some cue as to its significance is found in this fact. The examiner, therefore, will need to be cautious in not scoring this item too lightly. There is some presumption that the S may earn or is capable of earning a fair sum of money beyond childish allowances and over which he exercises control. There is also some expectation of significant minor monetary obligations, and consequently a fair amount of money is needed. Nevertheless, the emphasis is not so much on the *amount* of money, since this varies so greatly from person to person, but rather on the manner in which this money is conserved or expended for purposes which at earlier ages would have been attended to by the S's elders. Care must also be taken not to credit this item on the basis of performances in Item 87 or 76 alone. In general such "telescoping" of items is to be avoided.

The normative maturation progresses smoothly between LA's 15-19 except for a minor spurt for the boys at LA 16 and a false start for both sexes at LA's 13 and 14. The mean M-F difference is .35 years in favor of the boys, CR .40. The mean total norm is 16.53 years, SD 1.86.

The comment for the feeble-minded S's is the same as for Item 93.



ITEM 94: *Has own spending money.*

	Med.	*Mean*	*SD*	*CR*
M:	16.07	16.35	1.94	
F:	16.70	16.70	1.77	
D:		-.35		.40
Tot.:	16.25	16.53	1.86	

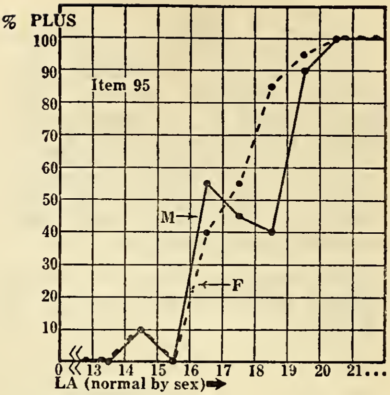
ITEM 95. (LA 17.37) *Buys all own clothing.*

This enlarges Item 87 as to more expensive articles of clothing, those less frequently purchased, and those requiring greater care of selection as to style, fit and quality.

In performing this item, the S usually selects and purchases his own clothing and effects, including dresses, suits, overcoats, hats, or at least makes his own final decisions in their selection and for their payment. In so doing he may be assisted or advised in matters of taste, fit, style, cost, and so on, as adults assist or advise each other in these respects, but the final responsibility for decisions and choice rests with him. These purchases may be made with his own earned money, or from a substantial allowance, or by means of authorized credit.

The normative maturation is rapid and smooth between LA's 16-19 (except for a lapse for the boys at LA's 17 and 18), with one subject of each sex succeeding at LA 14, and one of each sex failing at LA 19. The mean M-F difference is .45 years in favor of the girls, CR .58. The mean total norm is 17.37 years, SD 1.66.

The comment for the feebleminded subjects follows in principle the comment for Item 93.



ITEM 95: *Buys all own clothing.*

	Med.	*Mean*	*SD*	*CR*
M:	17.37 ?	17.60	1.86	
F:	17.17	17.15	1.39	
D:		.45		.58
Tot.:	17.50	17.37	1.66	

ITEM 97. (LA 18.48) *Looks after own health.*

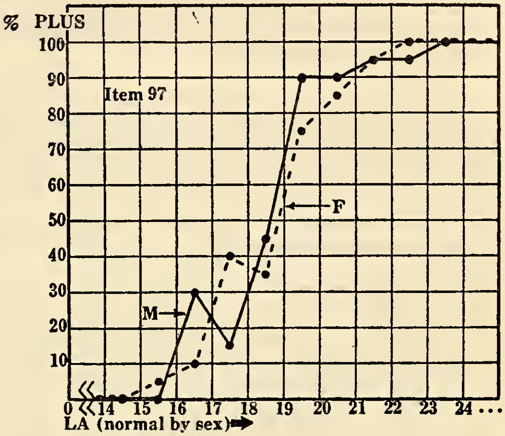
One important detail of self-direction is the conservation of personal well-being. This involves well-advised precautions in preventive hygiene, avoiding infectious diseases, obtaining and following suitable treatment in case of acute illness, organic difficulty, accident and other medical needs. The significance of these needs is not diminished by the fact that so few people effectively attend to them. The exercise of this responsibility is difficult to define because so frequently the proper safeguards to health involve the assistance of others.

The item requires that the S observe reasonable safeguards in preventive hygiene, guard against illnesses and accidents, care for himself with respect to minor ailments, and properly employ medical, dental or nursing assistance as needed in the more personal aspects of health conservation; i.e., the ultimate responsibility for sound health rests with the S rather than with someone else and is successfully discharged (with due regard for emergencies or situations beyond his personal reasonable control). This responsibility is rather difficult to determine in practice because of the varying degrees of responsibility that the S observes at different life ages. The item is also rendered somewhat uncertain by the all too common inattention to health prophylaxis by some, and by too much apprehension in these matters by others. In our empirical data, however, the maturation ogive for this item is not appreciably different from other items of the same age level. The examiner must not be too critical of the judgment displayed by the S in performing this item (in view of marked differences in personal attitudes toward health matters), but rather by the extent to which he does this for himself, since there is such a wide variety of attitudes, judgment and resourcefulness, in respect to health practices. On the

other hand, successful performance in these regards seems good evidence of competence. Obtaining dental care is one of the simpler details of this item which taken alone does not fully satisfy the item.

The normative maturation is fairly steep between LA's 16-19, with one partial success at LA 15, a spurt for the boys at LA 16 and a lapse for the girls at LA 18, and delayed individual success at LA's 20-22. The mean M-F difference is .15 years in favor of the boys, CR .18. The mean total norm is 18.48 years, SD 1.71.

For the feeble-minded S's there is one partial success (probably generous scoring) at SA 11-12. Scattered individual +F, +NO and full plus scores appear thereafter but are not significant for statistical comparison. Within the institution, health supervision is extended to substantially all subjects; outside the institution this item seems performed by the feeble-minded only marginally if at all.



ITEM 97: *Looks after own health.*

	Med.	*Mean*	*SD*	*CR*
M:	18.61	18.40	1.72	
F:	18.88	18.55	1.75	
D:		-.15		.18
Tot.:	18.74	18.48	1.71	

ITEM 99. (LA 18.70) *Goes out nights unrestricted.*

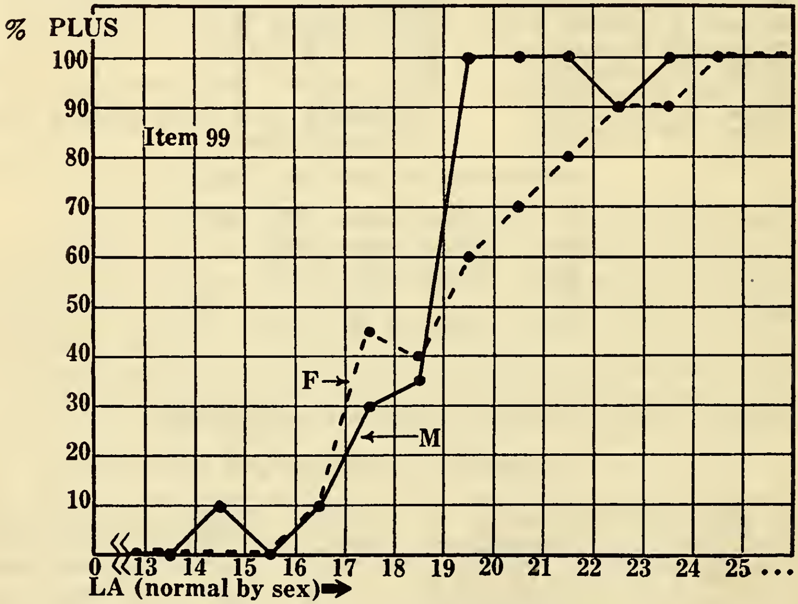
This is an enlargement of Item 93, and the discussion for Items 83 and 93 applies here with substantially equal force. This item standardizes at a higher age level than locomotion Item 96, which at first thought seems to include Item 99. Viewed empirically, going out at night without supervision in the home area does

seem to require a higher degree of responsibility than is required when the S is travelling at some distance from home.

In satisfying this item, the S is free to come and go at night without supervision, but may as a matter of courtesy account for his absence. This responsibility for one's own actions after dark presents certain conduct hazards, and the item requires that the S show discretion in conduct and does not get into trouble. The item does not require or include staying out all night. On the contrary, plus score is allowed if the S is required to be at home by some stated hour.

The item shows rapid maturation for the normative boys between LA's 16-19 with one success at LA 14 and one failure at LA 22. For the girls there is relative delay in success between LA's 19-22, with full success at LA 24. The mean M-F difference is .90 years in favor of the boys, CR .91. The mean total norm is 18.70 years, SD 2.14.

The comment for the feeble-minded subjects follows the same principles as that for Item 93.



ITEM 99: *Goes out nights unrestricted.*

	Med.	*Mean*	*SD*	*CR*
M:	18.73	18.25	1.64	
F:	19.00	19.15	2.46	
D:		-.90		.91
Tot.:	18.79	18.70	2.14	

The normative sex difference on this item between LA's 19-22 corresponds to the similar difference on Item 83 between

LA's 10-14, while there is no appreciable sex difference on Item 93. This is an interesting reflection of the greater social risks which surround girls at these ages (or are by their elders assumed to be present) in relation to the ability of girls to cope with potential hazards.

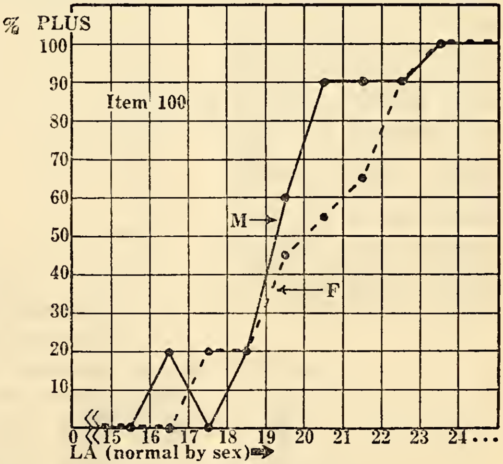
ITEM 100. (LA 19.68) *Controls own major expenditures.*

This extends Items 94 and 95.

Here the S exercises wider discretion in the personal use of money, and increased responsibility for larger sums of money. The money involved may be earned, or may be wholly or in part income or allowance, but no restraints are placed on its expenditure except as the S may seek general advice from others where this would reflect good judgment rather than dependence or irresponsibility. The item assumes that the S provides for all his financial needs without dictation and therefore assumes control of a sufficient amount of money to satisfy these needs. In the case of married persons there might of course be some division of responsibility in the expenditure of money, in which event the item is satisfied if the S is immediately responsible for a certain department of family or personal expenditures without dictation but perhaps following mutual discussion. It should be evident that the personal command of spending is warranted by the manner of its exercise.

The principal normative maturation appears between LA's 18-20 for the boys and between LA's 18-22 for the girls, with individual successes and failures before and after these limits. A noticeable sex difference in favor of the boys occurs at LA's 20 and 21. The mean M-F difference is .75 years in favor of the boys, CR .85. The mean total norm is 19.68, SD 1.89.

The feeble-minded S's show no successes up to SA 11-12. Thereafter there are no satisfactory +F or +NO scores. The adult feeble-minded outside institutions may pass the item literally but show marginal discretion in doing so. Indeed, really satisfactory success on this and later items in this category raises doubt as to the likelihood of mental deficiency in a given case.



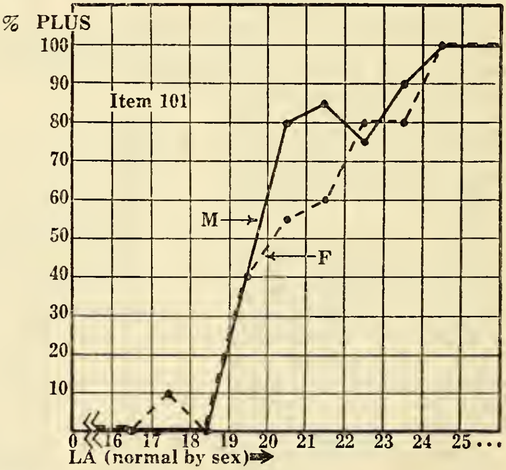
ITEM 100: *Controls own major expenditures.*

	Med.	*Mean*	*SD*	*CR*
M:	19.25	19.30	1.71	
F:	20.00	20.05	1.99	
D·		-.75		.85
Tot.:	19.42	19.68	1.89	

ITEM 101. (LA 20.53) *Assumes personal responsibility.*

This performance matures normatively between LA's 18-24, with a minor sex difference in favor of the boys at LA's 20 and 21. It is the last item in this category which attains and maintains full normative success. The mean M-F difference is .45 years in favor of the boys, CR .50. The mean total norm is 20.53 years, SD 1.90.

None of the feeble-minded S's pass this item at SA 11-12 or beyond. Those feeble-minded outside institutions who exercise this degree of independence do so with only marginal success, which is indeed the crucial measure of their mental deficiency. Borderline normal persons succeed, whereas the feeble-minded fail; consequently this item is another crucial indication of social normality versus deficiency.



ITEM 101: *Assumes personal responsibility.*

	Med.	*Mean*	*SD*	*CR*
M:	19.75	20.30	1.71	
F:	20.17	20.75	2.07	
D:		-.45		.50
Tot.:	19.86	20.53	1.90	

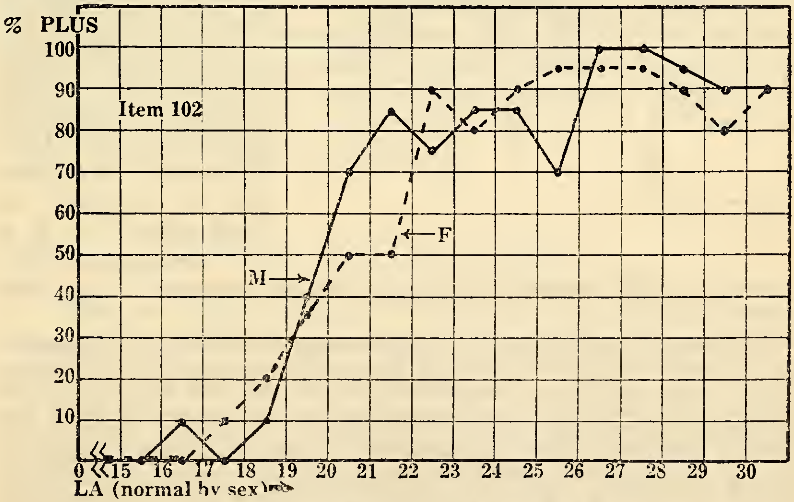
This item reflects a general synthesis of the preceding items in this category. It incorporates complete accountability for the personal direction of the S's own affairs subject only to such consultation with others and such conformity to social conventions as would ordinarily be expected of young adults in general. The item assumes that the S will be reasonably considerate of the comfort and welfare of others, and will manage his own

affairs with self-reliance, prudence and foresight. The item of course does not assume that the S is totally independent socially. On the contrary, in his occupational activities he may be subservient to others, and marriage or family living may require some concessions of personal independence to the amenities or necessities of group living. But the S should clearly not be dependent on others for successful direction of his personal activities.

ITEM 102. (LA about 21.5 +) *Uses money providently.*

This amplifies Item 100 by including thrift and foresight for maintaining what might be called a state of financial solvency. Allowance must be made for amount of income in relation to necessary obligations with due regard for variations in standards of living. In general a low income with heavy obligations and a favorable living standard will reveal success more readily than a high income with few obligations and poor standard of living. In another sense, success on this item is intermediate between Item 100 and Item 105.

To pass this item the S not only has responsible control of his income but lives circumspectly within it, meets his proper financial obligations promptly, maintains his credit, and avoids waste and extravagance within a standard of living which is prudently related to his financial resources and obligations. The item therefore assumes that in the use of money there will be a reasonable harmony between luxuries and necessities, and reasonable discretion such as might be reflected in a balanced budget whether or not the expenditures are budgeted in fact.



ITEM 102: *Uses money providently.*

	Med.	*Mean*	*SD*	*CR*
M:	19.83	-	-	
F:	21.00 ?	-	-	
D:		-		-
Tot.:	20.06	-	-	

The normative curve reveals two successes prior to LA 18, fairly rapid increase from LA's 18-22, and individual differences thereafter which prevent completion of the curve. Hence the conventional statistical measures cannot readily be employed. The boys show a slight but inconsistent advantage over the girls. Total median success is at LA 20 years, with estimated mean success at about LA 21 + for the boys, LA 22 + for the girls and LA 21.5+ for the total (see discussion p. 361). The calculation of estimated means is disturbed by the long tail of the distribution which fluctuates between 70 and 100 per cent for LA's 20-30+. This only confirms the common observation that not all otherwise competent adults usually spend money prudently.

None of the feeble-minded S's pass this item, nor is it likely that the mentally deficient outside institutions would satisfy its requirements more than marginally.

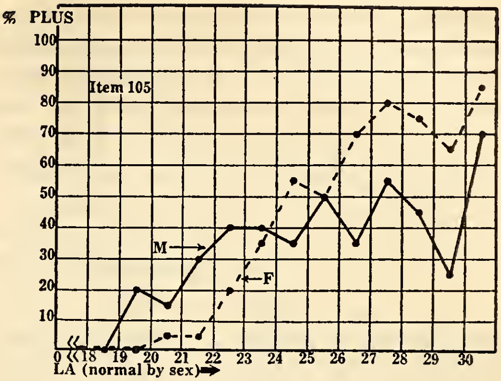
ITEM 105. (LA 25 +) *Provides for future.*

This enlarges Item 102 by assuming that in the use of money some provision will be made for remote rather than imminent expenditures. The item requires that the S retains his economic independence for protracted periods and anticipates future needs. Allowance may be made for extended rather than temporary emergencies or financial catastrophies, but it is the anticipated provision for such unexpected events that is reflected in the item.

For satisfying the item, the S consistently sets aside some significant part of his income as bank savings, insurance, investment, long-time purchases, higher education of dependents, and the like, and this is done with good financial judgment. Thus the purchase of a home, special home furnishings, or special personal effects, which have a definite investment value or which can fairly readily be converted to cash, would be acceptable. In other words, the item requires that the S does not consume his entire income in maintaining a present standard of living and that he defers immediate satisfactions for remote advantages. The item assumes a sufficiently adequate income to provide for the necessities of life, but recognizes that the variations in the standard of living makes possible some providing for the future even at a relatively low income. If the income is considered too small to permit setting aside appreciable sums for future needs, the item is scored minus.

The normative maturation begins at LA 19 and progresses slowly to median success at LA 25 with individual differences in success between 25 and 85 per cent (average 60 per cent) thereafter. The men excel the women at LA's 19-23, but subsequently fall definitely below them. Internal analysis of the data yields no satisfactory confirmation of speculative explanations of these M-F differences.

None of the feebleminded S's pass this item.



ITEM 105: *Provides for future.*

	Med.	*Mean*	*SD*	*CR*
M:	27.70 ?	-	-	
F:	24.85 ?	-	-	
D:		-		-
Tot.:	25.50	-	-	

The examiner must be careful not to substitute apologies for success in scoring this item. The reasons surrounding the performance may, however, influence the interpretation of the score assigned. Yet even here sophistication is helpful since many immediate luxuries may become regarded as necessities, and denying one's self such present satisfactions in favor of presumptive later and greater values requires a definitely superior degree of social maturation.

ITEM 112. (LA 25 +) *Purchases for others.*

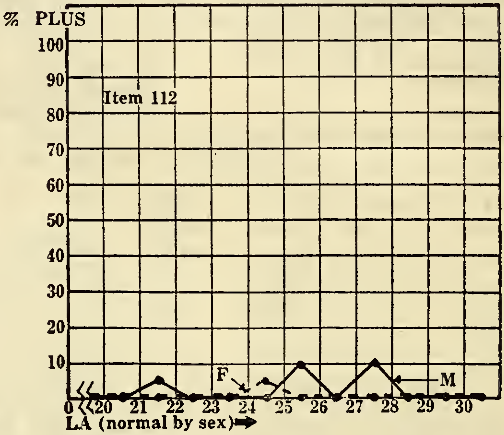
This is a superior form of Item 100 and related items by extending monetary responsibility from personal discretion to acting as financial agent for others.

In the performance of this item the S either makes or approves major purchases beyond his own needs or those of his own household and relatives, and in so doing displays adequate responsibility, choice and financial judgment.

The item may be considered in some instances as an occupation item and may be so interpreted, as in the case of buyers and financial agents. It might in other instances be regarded as a superior adult socialization item if the performance represents social assistance rather than a frank occupation. However, it has been placed in the self-direction category because of its major significance as extending this form of assistance to others as a comparatively rare degree of general prudence. Purchasing for others within the ordinary family circle does not warrant plus scores.

The normative data show one partial success for men at LA 21, one full success at LA 25 and another at LA 27, and one partial success for women at LA 24. The item cannot be interpreted statistically except as revealing individual aptitude within the superior adult range.

None of the feebleminded S's pass this item.



ITEM 112: *Purchases for others.*

	Med.	*Mean*	*SD*	*CR*
M:	-	-	-	
F:	-	-	-	
D:		-		-
Tot.:	-	-	-	

Summary. In summarizing this category we may add that a major difficulty was encountered in formulating these items in that they were designed to allow for wide variation in personal standards of conduct, social conventions, monetary discretion, social and economic status, scale of living and other details of personal-social accountability. Care has been exercised to avoid virtuous and moralistic concepts of such behavior except as social competence involves certain relatively universal conformity to accepted social standards of living on the one hand and freedom of individual conduct on the other. The extent to which the formulations are fruitful may be inferred from the consistency of the data obtained (1) as to total normative progressions, (2) as to sex differences and (3) as to normal versus feeble-minded validation. These results are in general accord with expectation; except for a generally adequate formulation such consistent evidence could hardly have been obtained. Further confirmation is found in the consistent relation of items in this category to the Scale as a whole.

The normative sex differences on these items are of negligible amount and low statistical reliability. The highest M-F CR is 1.13, and the highest mean difference is 1.40 years (one-eighth of its base), both on Item 83. All other M-F CR's are below .92, and all other D's are below .91 years.

The items show markedly inferior maturation for feeble-minded SA groups compared with normative LA intervals. However, this is not statistically proved because of the limited number of feeble-minded subjects in the upper range of maturation for these items. The feeble-minded S's attain 100 per cent success on only one item (Item 60) with a CR of 5.21 and a mean difference of 2.35 years (nearly half its base) in favor of the normal subjects.

Our observations on the feeble-minded outside institutional residence (estimated generally as 90 per cent of all the feeble-minded) are somewhat gratuitous as well as speculative. These comments are based on impressions gained from extensive field experience rather than on systematic evidence, except as reported on page 466.

SUMMARY of ITEM DATA

SELF-DIRECTION CATEGORY

(From Tables 2 and 9)

	Normative by sex						Normal vs Feeble-Minded					
Item	M	F	SD_m	SD_f	D	CR	N	FM	SD_n	SD_{fm}	D	CR
60	5.90	5.75	1.00	1.23	.15	.28	5.83	8.18	1.12	1.62	—2.35	5.21
76	9.50	9.25	1.37	1.31	.25	.40	9.38	—	1.34	—	—	—
83	10.75	12.15	2.33	2.91	—1.40	1.13	11.45	—	2.72	—	—	—
87	13.05	12.95	2.32	2.27	.10	.09	13.00	—	2.29	—	—	—
93	16.00	16.25	2.31	1.52	—.25	.27	16.13	—	1.96	—	—	—
94	16.35	16.70	1.94	1.77	—.35	.40	16.53	—	1.86	—	—	—
95	17.60	17.15	1.86	1.39	.45	.58	17.37	—	1.66	—	—	—
97	18.40	18.55	1.72	1.75	—.15	.18	18.48	—	1.71	—	—	—
99	18.25	19.15	1.64	2.46	—.90	.91	18.70	—	2.14	—	—	—
100	19.30	20.05	1.71	1.99	—.75	.85	19.68	—	1.89	—	—	—
101	20.30	20.75	1.71	2.07	—.45	.50	20.53	—	1.90	—	—	—

SOCIALIZATION

So you have mastered
mighty things
my son - -
walking - - talking - - thinking
play - - well done.

And today - - great wide world
beckons - - and you go to school.
Have I lost a little boy
have I gained a man?

What is the rule
What is the plan?
I must not question the
mystery of you
I must follow in your high-
way if I can. —Eva Parshalle

Social competence naturally involves social relationships since the expression of individual adequacy matures within a social setting. Few if any persons are more than partially or temporarily independent of their social environment. Consequently the exercise of personal independence and personal responsibility must always be gauged with reference to the social group as well as to the age level within which these performances are displayed. Indeed, the social competence of the individual from one point of view is indicated by the extent to which he is accepted among his fellows as equal, inferior or superior to his age and cultural-economic level.

We have elsewhere observed that in the first decade of life the individual is dominated by his elders, in the second decade acquires self-dominance, and in the adult period dominates his juniors and perhaps his elders or contemporaries. This movement from dependence to independence and then to responsibility for others is most clearly evident in these social performances which involve group relationships. In the periods of childhood and youth, these relationships are most clearly evident in play activity and cooperative group interests. These emerge in the adult period as altruistic enterprises which advance the welfare of associates, family and society at large. Hence the socialization items of this scale cover the entire range of social maturation from early infancy to superior adult levels.

The term "self-sufficiency" has previously been used rather loosely as indicative of social competence as herein defined. This may imply to some readers a divorce of the individual from his social milieu and fellows. On the contrary, such a concept would not rise above mere adequacy for sustaining existence, whether within or without the social-cultural-economic setting in which most human beings grow up and live their later years. Few men are sufficient to themselves; normal human living requires collaborative association. Hence living merely by and for self alone, however adequately accomplished, falls outside the bounds of social competence as here set forth. In the same way our concept of social *adequacy* is not limited to mere self-subsistence at a marginal level, but assumes a spread of performances to include assistance to others. To be socially adequate may literally mean just "getting along" or "getting by," but is here construed as also involving some residue which accrues to the general welfare.

We wish that these intentions might have included the evaluation of *emotional* maturity and dynamic attitudes as critical facets of total personality since these are such obviously potent factors in overall social maturation. Indeed, we made an earnest attempt to incorporate these, but without success except as they are reflected in various ways in all items and categories. Insofar as these and other aspects of personality influence social competence they may be assayed by other means, and such results may be employed in the *evaluation* of social maturity as here conceived.

The items of this category are somewhat difficult to formulate at the play activity levels because at first thought they seem irrelevant to the productive expressions of competence that have been so characteristic of the items previously presented. But the evolution of play activity does reflect growth in psycho-social experience which is something more than psychological maturation alone. Our problem is to avoid the explicit genesis of these psychological phases of development, and instead employ their functional incorporation in social participation.

Some comment is pertinent here regarding the scoring of these items in the face of special disabilities, such as blindness, deafness, crippling, anti-social conduct, mental disorder and advanced age. Equivalent forms of play may be employed as alternatively acceptable where self-evident and feasible, but allowances for specific disabilities should be accounted under interpretation rather than under generous scoring.

Among subjects with mental disorders or in their senescent years there is some regression toward childish play normatively outgrown at intermediate age levels. The examiner must decide for himself in such cases whether the absence of play activity of a given sort represents immaturity or involution. In such circumstances the attending LA and SA of the S will afford some clue to scoring. In the case of feeble-minded subjects the *level* of activity may not have been exceeded but its *type* modified by advancing years, a fact which is pertinent in those subjects whose inactivity is due to lack of energy or initiative rather than to immaturity or deterioration.

The 17 items in this category cover almost the entire range of the Scale (from Item 4 to Item 117). There are no items for years II, VI, VIII to XII and XV to XX. Whether this dearth of items between LA's 8-20 years is due to weaknesses of formulation or categorization is a moot point. There is a rather marked series of socialized play and recreation items (27, 46, 56, 59, 69, 85, 88), another series of advanced social responsibility (103, 104, 109, 110, 115, 117), and a minor series of interpersonal relations (4, 14, 49). Item 68 is an odd item marking the transition from animistic to realistic social consciousness.

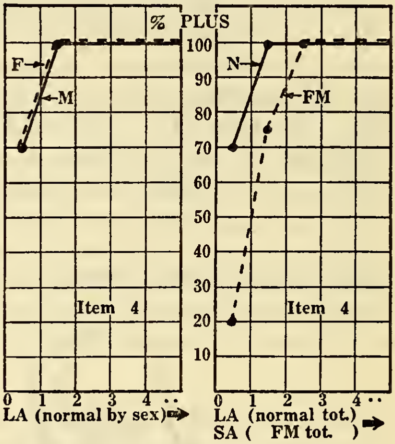
ITEM 4. (LA .30) *Reaches for familiar persons.*

In early infancy the adult or elder person assumes responsibility for the care of the infant and ministers to his needs and desires. A few months after birth the normal infant seeks attention instead of waiting for it. Aside from mere bodily needs and the satisfaction of immediate physical wants, the infant soon reveals a desire for *social* attention on the part of familiar persons.

At this item level, the S in various ways indicates a desire to be taken up or fondled by such familiar persons as the mother, father, nurse or elder sibling, and in so doing discriminates between familiar persons and strangers. This is an early form of the identification of the individual with his social environment and reflects the growing recognition of those persons from whom he may expect immediate assistance or comfort. "Reaches" here means any form of clear recognition, such as actual reaching, eager squirming, vocalization or even invitational smiling, as an obvious distinction between familiar and unfamiliar persons.

The normative data show 70 per cent success for both sexes in the first year (LA 0-1) and 100 per cent thereafter. The mean total norm is .30 years.

The feeble-minded S's show delayed maturation in SA versus normative LA groups. The mean N-FM difference is .75 years.



ITEM 4: *Reaches for familiar persons.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	.21	.30	-		N :	.21	.30	-	
F:	.21	.30	-		FM:	1.05	1.05	.60	
D:		0		-	D :		-.75		-

This item as formulated places no emphasis on neutral or withdrawal attitudes toward familiar or unfamiliar persons. Such negatively discriminative recognition of strangers, or resistance towards unwelcome approaches by familiar persons, might well be incorporated as an item (e.g., Resists unwelcome advances) between this item and Item 41.

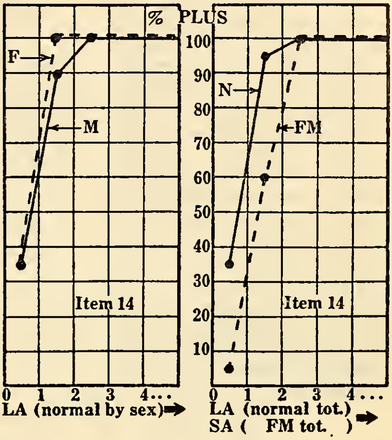
ITEM 14. (LA .70) *Demands personal attention.*

This is an extension of Item 4 (more insistence).

The infant now "demands" attention beyond mere care for his physical wants. In addition to mere fondling he indicates desires to be transported, talked to, played with, or otherwise taken account of. In so doing, he participates to some degree actively rather than as a mere passive recipient of attention. The response may be accepted from either familiar or (though less likely) unfamiliar persons.

The normative distinction between this item and Item 4 is evident from the comparative maturation curves. The mean M-F difference is .10 years in favor of the girls. The mean total norm is .70 years, SD .48.

As for Item 4, the feeble-minded S's show comparative retardation in SA versus LA intervals. The mean N-FM difference is .65 years, CR 4.14. This difference, as well as that for Item 4, might be interpreted as one early evidence of the typical lack of initiative so commonly evident among feeble-minded subjects, but such an interpretation may be specious.



ITEM 14: *Demands personal attention.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	.77	.75	.55		N :	.75	.70	.48	
F:	.73	.65	-		FM:	1.32	1.35	.49	
D:		.10		-	D :		-.65		4.14

While seeking attention from familiar persons the S may refuse or resist such ministrations from strangers. Negativism toward strangers (as well as "repudiation" of some familiar persons) suggests a higher degree of social discrimination and selective behavior with perhaps more than one definitive stage.

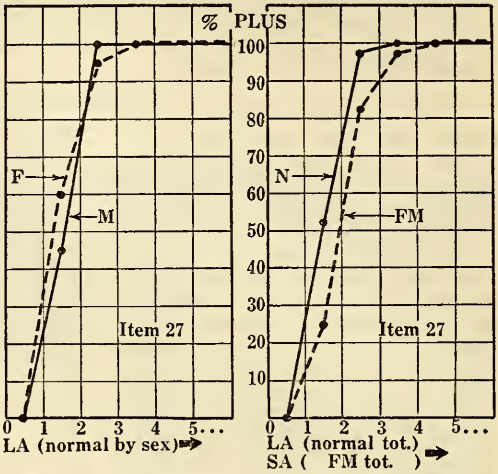
ITEM 27. (LA 1.50) *Plays with other children.*

The desire for social association soon shifts from demands on elders to active relations with other children of similar age. At first this takes the form of playing in company with others, although such play may be relatively independent or non-cooperative.

To pass this item the S engages in social-situation play with or among other children of about his own age and some familiarity, but in so doing does not interfere obnoxiously with others, or create disturbances, and requires but little oversight from his elders. The periods of play may be relatively brief and intermittent, but the tendency to get along with others is well established.

The normative maturation in this item develops between LA's 1-2. The mean M-F difference is .10 years, in favor of the girls. The mean total norm is 1.50 years, SD .47.

The feeble-minded S's show mild but consistent retardation in SA versus normative LA periods. The mean N-FM difference is .45 years, CR 2.47. Self-initiated play on the part of feeble-minded children is somewhat less spontaneous and is accompanied by more inter-personal interferences than among normal children. Note also that the mean LA of the feeble-minded subjects is about fifteen years in advance of the normative.



ITEM 27: *Plays with other children.*

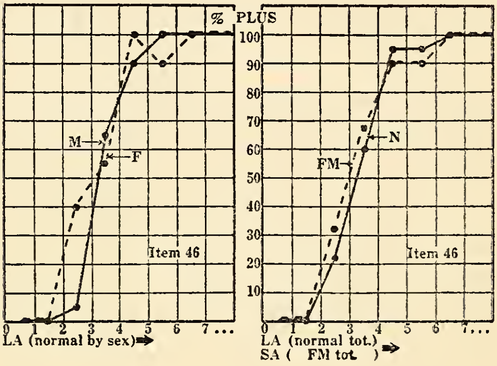
	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	1.59	1.55	-		N :	1.45	1.50	.47	
F:	1.33	1.45	.52		FM:	1.94	1.95	.64	
D:		.10		-	D :		-.45		2.47

ITEM 46. (LA 3.28) *Plays cooperatively at kindergarten level.*

As play interests develop, the social relationships are extended from independent play in *company* with others to coordinate play in *participation* with others. Such coordinated early group play takes place at a simple level as represented by kindergarten and circle games, imaginative group play (such as tea parties, doll play, family projections), or in general "folk play" in which mutual or reciprocal action is involved. The S may be leader or follower, but the play is expressive and cooperative and is more than fitfully pursued.

Normative success occurs between LA's 2-4 years. The mean M-F difference is .25 years (note interlacing) in favor of the girls, CR .57. The mean total norm is 3.28 years, SD .93.

The feeble-minded S's closely match the normative. The mean N-FM difference is .08 years, in favor of the feeble-minded subjects, CR .24. Although this group play is at the kindergarten level, it should be noted that the average LA of the feeble-minded subjects is in the late adolescent years.



ITEM 46: *Plays cooperatively at kindergarten level.*

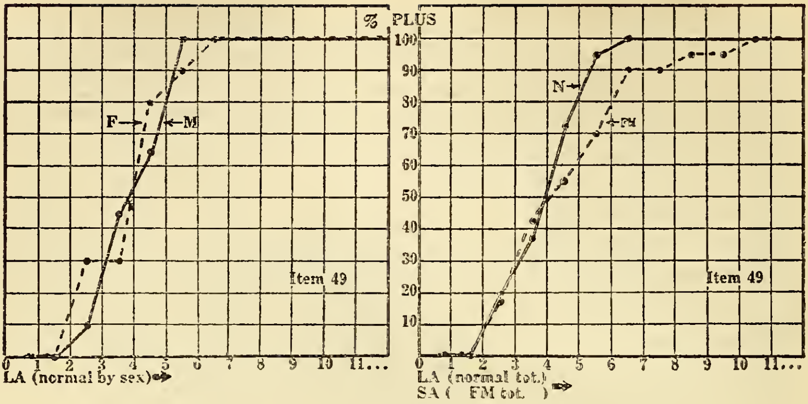
	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	3.25	3.40	.68		N :	3.23	3.28	.93	
F:	3.17	3.15	1.12		FM:	3.00	3.20	1.15	
D:		.25		.57	D :		.08		.24

ITEM 49. (LA 3.75) *"Performs" for others.*

As social expression develops, the child engages in simple performances for the entertainment of others by doing various "stunts" such as reciting, singing, dramatizing, dancing or gymnastics. This may be done (1) for the edification of children of his own age, (2) as a form of aggressive self-expression, (3) as a means of self-satisfying expression, or (4) as an elementary form of social entertainment of elders. The performances are presumed to be fairly creditable rather than merely "showing off" or sentimentally "cute." They may be executed individually or with others.

The normative progression is fairly smooth and rapid between LA's 2-5. The mean M-F difference is .10 years in favor of the girls, CR .19. The mean total norm is 3.75 years, SD 1.12.

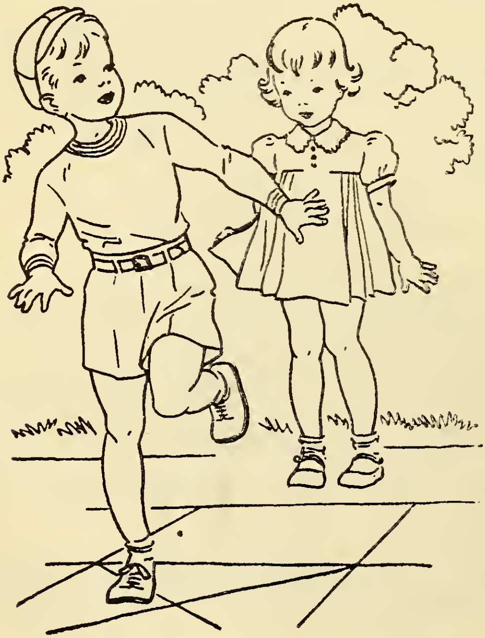
The feeble-minded S's closely follow the normative curve at SA versus LA intervals 2 and 3, with progressive comparative delay thereafter to 10 years. The mean N-FM difference is .70 years in favor of the normal subjects, CR 1.31.



ITEM 49: *"Performs" for others.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	3.75	3.80	.99		N :	3.86	3.75	1.12	
F:	3.90	3.70	1.24		FM:	4.10	4.45	2.05	
D:		.10		.19	D :		-.70		1.31

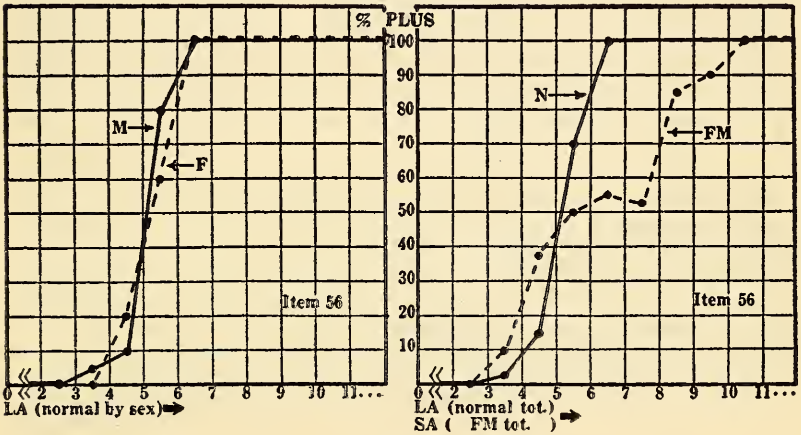
ITEM 56. (LA 5.13) *Plays competitive exercise games.*



At about the time the child enters school he competes at play within small groups of children of approximately similar ages. This takes the form of exercise games such as tag, hide-and-seek, jumping rope, playing marbles, spinning tops, hopscotch, statue. These games involve some appreciation of simple rules, or forms of play, and some subservience to these as facilitating group cooperation.

The normative development occurs rapidly between LA's 4-6, with one partial success at LA 3. The mean M-F sex difference is .15 years in favor of the boys, CR .48. The mean total norm is 5.13 years, SD .65.

The feeble-minded S's excel the normal slightly at LA's 3 and 4, and then fall seriously behind them in SA versus normative LA periods. The mean N-FM difference is 1.07 years in favor of the normal subjects, CR 1.95. The SD is comparatively high for the feeble-minded S's because of the protracted delay in attaining complete success. This delay is affected by the LA increases in the later SA groups and the loss of interest in childish play with advancing years.



ITEM 56: *Plays competitive exercise games.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	5.07	5.05	.61		N :	5.14	5.13	.65	
F:	5.25	5.20	.69		FM:	5.50	6.20	2.31	
D:		-.15		.48	D :		-1.07		1.95

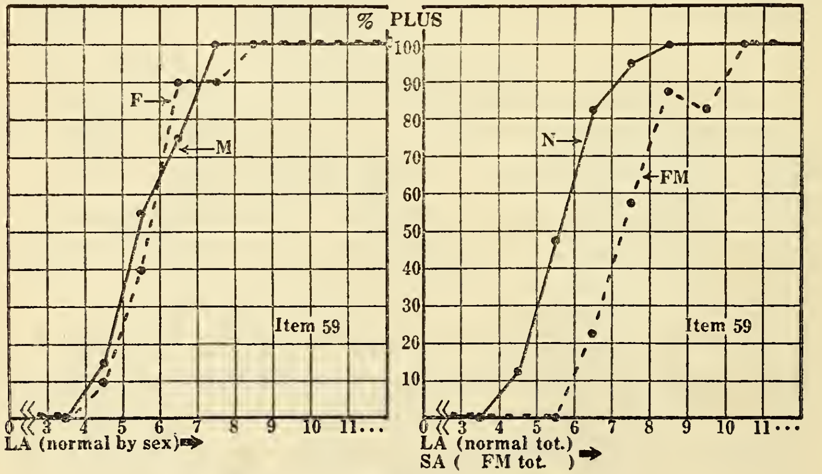
In this as in other play items regard must be had for regional and "fashionable" (temporal) differences in play interests. Variations also occur in social-economic-cultural group settings. It is impracticable to specify such variations; the definitions and examples herewith are designed to convey a central theme for evaluation, the particular modulations of which must be left to the examiner's judgment according to local and temporal circumstances.

ITEM 59. (LA 5.63) *Plays simple table games.*

In this item the play activity is simplified with reference to the degree of physical activity involved and somewhat more complicated as to the game patterns and rules. It also emphasizes the increased need for harmonious group action.

The normative maturation is smooth and rapid between LA's 4-7. The mean M-F difference is .15 years in favor of the boys, CR .33. The mean total norm is 5.63 years, SD .98.

The feeble-minded S's show definite retardation in SA versus LA periods. The mean N-FM difference is 1.87 years, CR 5.15. This difference reflects the relative lack of sustained intellectual and social rivalry so apparent among feeble-minded subjects, rather than loss of interest due to relatively advanced years.



ITEM 59: *Plays simple table games.*

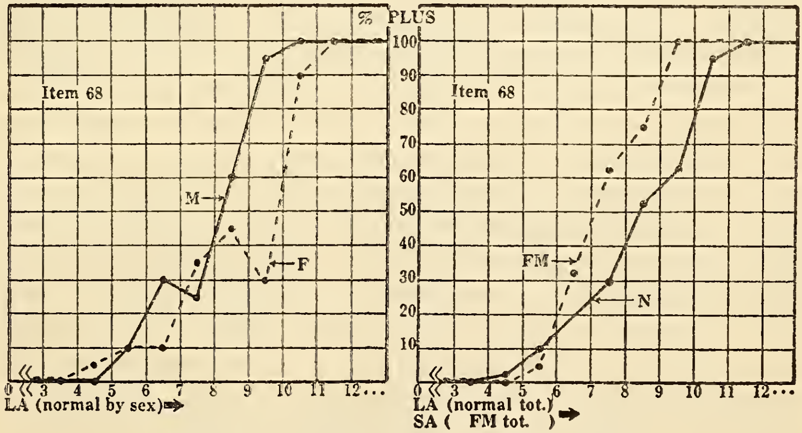
	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	5.38	5.55	.98		N :	5.57	5.63	.98	
F:	5.70	5.70	.96		FM:	7.29	7.50	1.25	
D:		-.15		.33	D :		-1.87		5.15

The item requires cooperation with others at table games in taking turns, appreciation of goals, observance of rules, exercise of judgment, and friendly rivalry. These nuances are to be maintained without dissension in such games at tiddle-de-winks, simple card games, dominoes, checkers, spinning games, and so on. The kinds of games will vary with time and place; the level is beyond kindergarten amusements.

ITEM 68. (LA 8.28) *Disavows literal Santa Claus.*

The child's early concepts of social organization are tinged with animistic and anthropomorphic ideas as reflected in various myths and the social preservation of primitive sentiments. In early infancy the child accepts these phantasies regarding fairies, the personification of objects, and the spiritism associated with certain festivals and holidays. In later childhood the literal significance of these concepts is rejected, but their sentimental or symbolic values may be retained. This release from mythical to realistic attitudes is sufficiently important in the social adjustment of the individual to serve as indicating a definite stage of social sophistication which marks a distinct turn in the child's social orientation. This item is therefore included to reveal this emergence from naive, animistic to materialistic attitudes as having a definite bearing on the child's social insight.

To pass the item the S rejects his earlier mythical notions and turns to more objective interpretations of experience. "Santa Claus" here is employed as a generic term for related personifications such as fairies, elves, Easter Rabbit, goblins, gremlins, "bogyman" and other demi-deistic patrons and devils.



ITEM 68: *Disavows literal Santa Claus.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	8.21	7.80	1.44		N :	8.39	8.28	1.81	
F:	9.83	8.75	2.00		FM:	7.08	7.25	1.21	
D:		-.95		1.16	D :		1.03		2.07

The normative maturation for this item occurs between LA's 5-10. There is an interesting discrepancy for girls at LA 9. The mean M-F difference is .95 years in favor of the boys, CR 1.16. The mean total norm is 8.28 years, SD 1.81.

The feeble-minded S's pass the item earlier than the normative S's in SA versus LA intervals. The mean N-FM difference is 1.03 years, CR 2.07. This suggests that the item is materially influenced by LA.

This item is subject to some misunderstanding. The examiner is likely to confine the scoring to Santa Claus alone as the Christmas patron-spirit rather than generically to other anthropomorphic and animistic equivalents. Some S's do not for various reasons "accept" the Santa Claus myth in spite of its universality (by whatever name may be regionally conventional). There are also marked individual and family differences regarding the desirability of fostering or destroying this "superstition." And where shall the lines be drawn between sentimental myth, superstitition and whimsical "rapping on wood," spiritual conceptions and religious beliefs of many kinds? One may also question the value of this item as to its relevance for measuring social competence as herein conceived.

We reply that the belief in Santa Claus or equivalent mythical spirits of good and evil (as well as in their abodes) is so widespread in our culture as to constitute environmental universality of experience. The transition from ingenuous literal credence in such "unverified phenomena" (of which Santa Claus is ordinarily the last to be given up) to sentimental or symbolic sophistication constitutes an early form of ideational-emotional conversion which has definite social import and is not always without attendant attitudinal trauma. The later religious conversions so typical of adolescent reorientation of faith in theistic convictions and the supernatural are closely similar social experiences which have even graver bearing on social attitudes and consequently on social values. The variety of that experience, however, and the manifold forms of religious expression encountered among adults, balked our several attempts to formulate its continuing orderly maturation and practical pertinence. The time of onset, or first acceptance, of such "convictions" might well enough be conceived as substitute items.

ITEM 69. (LA 8.28) *Participates in pre-adolescent play.*

The play activities of growing children show such progressive modification as to reveal definite stages of social maturation. This is reflected in the acceptance or rejection of the individual in groups of his own age level of development. While some older children may participate in play activities below their years, and some younger children may be tolerated in the play activities of their more grown-up fellows, play activities do gradually lead to a fusion of age-group interests which are rather clearly differentiable.

In the period of infancy and early childhood these activities are largely bisexual, with boys and girls collaborating on equal terms. In the pre-adolescent period definite sexual differentiation evolves. This is somewhat abated in later adolescence as the sexes join in heterosexual or competitive, folk, group and sports activities.

Boys here engage in cooperative team play not requiring very highly coordinated skills or very complex rules, yet which reveal a higher degree of organization than the activities discussed in previous items. Or the forms of play pursued at earlier ages under simple rules become more complex although still rather loosely organized, such as (a) baseball, football, basketball, hockey and the like, of the "sand-lot" variety; (b) range games such as follow-the-leader, fox and geese; (c) more individual forms of recreation such as hiking, bicycling, swimming, skating, fishing or hunting which may be pursued alone or in the company of a few others of the same age or older.

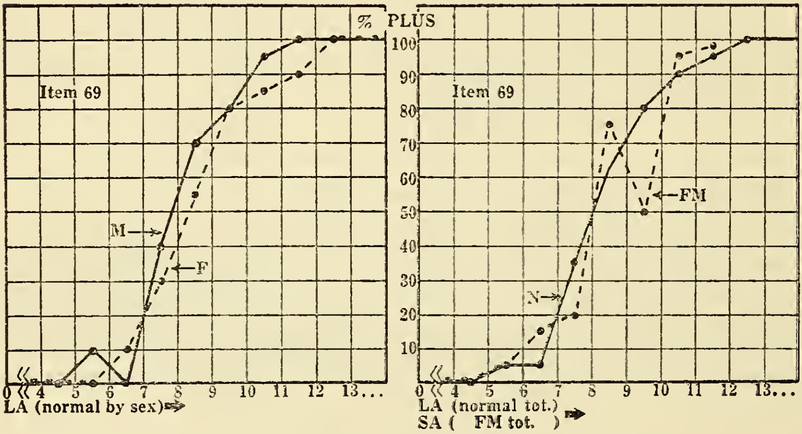
Girls, for satisfactory scoring on this item, engage in dramatic play symbolizing domestic or social situations, such as playing house, school or store (the reproduction of adult activities at a juvenile level). They may, of course, also engage in team play similar to that of boys, but usually in somewhat less vigorous or modified form. They may also pursue individual and small-group recreations not requiring team organization. And some girls may still be accepted among boys as "good sports" on equivalent terms.

The examiner will recognize that complete sex differentation in play has not yet taken place at this level and that while there is some differentiation in groups, this does not necessarily apply to individuals, as in the case of "tom-boy" girls or of "sissy" boys.

This is therefore one of the few items which may require some distinction as to sex in scoring the *type* of activity although there is little need for discrimination as to its *level.* The item is considered passed if the S typically seeks recreation in modes equivalent to those noted in the preceding paragraphs. It is permissible to score boys on the activities ordinarily preferred by girls, and vice versa.

The principal normative maturation is evident between LA's 7-10, with single successes at LA's 5 and 6, and a single failure at LA 11. The mean M-F difference is .45 years in favor of the boys, CR .63. The mean total norm is 8.28 years, SD 1.55.

The feeble-minded validation curve closely parallels the normative progression except for a lapse at SA 9. The curve falls slightly short of full success at SA 11-12. If assumed as complete thereafter (as is warranted by the fragmentary data beyond SA 11-12), the mean SA is 8.43 years, SD 1.68. The mean N-FM difference is then .15 years in favor of the normal subjects, CR .29.



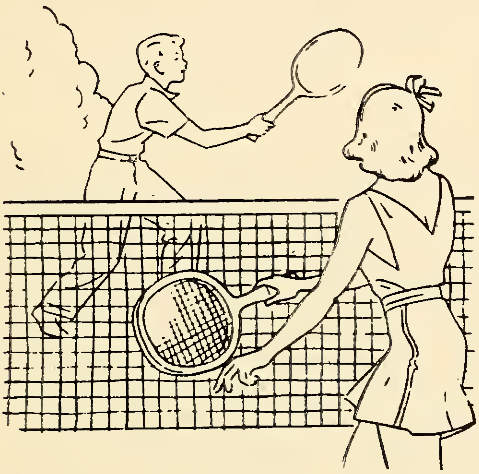
ITEM 69: *Participates in pre-adolescent play.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	7.83	8.05	1.40		N :	8.05	8.28	1.55	
F:	8.30	8.50	1.66		FM:	8.78 ?	8.43*	1.68*	
D:		-.45		.63	D :		-.15		.29

*100% assumed at SA 12-13

Some difficulty is encountered in scoring this item with feeble-minded and (other) adult subjects because with advanced years the item may be (perhaps should be) outgrown, restricted or superseded. Such scoring is provided for under the general rules for scoring (Chap. 7), which should be resorted to for overall considerations on all items. Relatively low energy expenditure or lack of spontaneous initiative on the part of the S should not be too lightly ignored if present as a limiting factor. Judgment is also required as to substitute equivalent forms of expression which are too variable for exposition here.

ITEM 85. (LA 12.30) *Plays difficult games.*

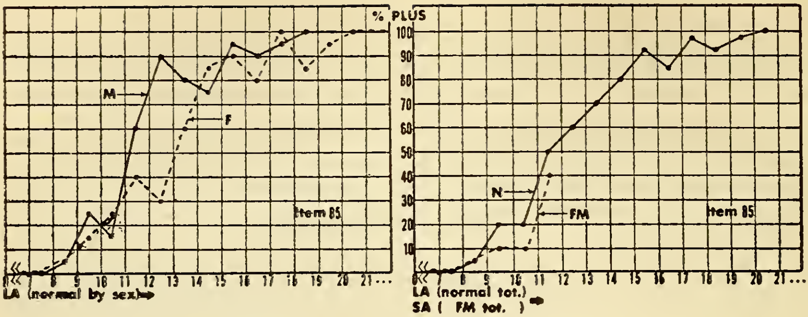


This item combines extensions of Items 59 and 69. Here "games" is used as a generic term for table-games, team sports, inter-personal and small-group competitive sports, and recreations involving relatively high degrees of complexity of rules, skills and scoring. These include: Hoyle card games; Mah Jong equivalents; organized baseball, basketball, football, hockey; tennis, golf, archery, competitive or highly skilled swimming, skating, fencing, boxing, wrestling, gymnastics; field and track sports; chess, billiards, pool; and so on. These games may be played with or without sex differentiation, may be indoor or outdoor, may be pursued singly, in pairs, in small groups, or in teams. In any case they require "strategy," skill, conformity to rules, and ability to keep score in varying degrees.

There is considerable variety as to these requirements but the item is to be scored plus when the activity includes a degree and kind of performance typically and consistently expressed as beyond the juvenile level but below semi-professional attainment. The item differs in social content from Item 88 and in social intent from Item 107.

The normative progression is gradual and somewhat irregular between LA's 8-15, with subsequent lag (individual failures). There is a periodic sex difference at LA's 11-13 in favor of the boys. The nature of the maturation curve suggests individual differences which are not wholly offset by rapidity of genetic maturation. The mean M-F difference is 1.20 years in favor of the boys, CR .92. The mean total norm is 12.30 years, SD 2.84.

The feeble-minded S's follow the normative maturation curve with mild retardation in SA versus normative LA groups to SA 11-12. A satisfactory central tendency score cannot be computed. The fragmentary data beyond SA 11-12 show 33 per cent of passes at SA 12 (N=15), 57 per cent at SA 13 (N=7), 25 per cent at SA 14 (N=6), and 100 per cent at SA's 15 and 16 (N=4 and 5 respectively).



ITEM 85: *Plays difficult games.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	11.28	11.70	2.49		N :	11.50	12.30	2.84	
F:	13.17	12.90	3.03		FM:	-	-	-	
D:		-1.20		.92	D :		-		-

Those who are not well acquainted with the feeble-minded may be surprised to learn (partly because the caption title is misleading) that any mental defectives succeed on this item. Such success usually reflects individual aptitude combined with favorable opportunity for expression. Morale in team work may be unstable, and sustained persistence may be intermittent. But the high-grade feeble-minded do engage in sports, table games, team gymnastics and individual or small-group recreational skills. The Training School baseball team, for example, has several times won the cup of the local inter-church and YMCA-sponsored leagues. Football has been less successful. Swimming, skating, tennis, track sports, and so on have their individual "stars" even though of dubious magnitude. Lesser degrees of success are apparent at the level of Item 69.

ITEM 88. (LA 14.10) *Engages in adolescent group activities.*

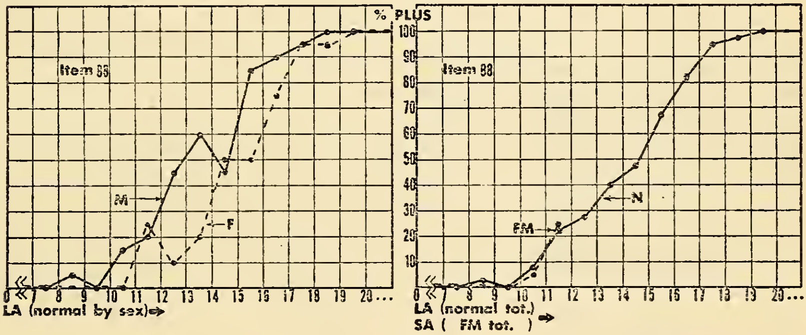
Item 85 deals with games, sports and recreation in more or less competitive forms of social relations. Another and somewhat higher form of collaboration is found in those group activities in which the emphasis is on social communion rather than rivalry. This both overlaps and expands the content of Items 69 and 85 by "playing up" the internal cooperation rather than the external emulation in activities where friendly rivalry is not wholly absent.

To satisfy this item the S is an active member of a cooperative group, athletic team, social club, dramatic, musical, literary or similar organization. The inter-social aspect of such group participation is considered more important than the activity in which the group engages, whether card club, sewing circle, debating team, outing group, church league, or whatever. In

such connections the S commonly plans or participates in friendly sports, dances, parties, trips and other enterprises as one of a social quorum of similar age and interests—a self-determined group without adult leadership in which the S is accepted on equal terms with his fellows. The size of the group is not so important as its social coherence and mutual give and take. The S is to be more than merely tolerated in such groups. The item is in effect a junior level of Item 104. The *kind* of enterprise is less important than its cooperative nature as intermediate between juvenile and adult interests.

Normative success emerges gradually but somewhat irregularly between LA's 10-17, with periodic sex difference at LA's 12, 13 and 15. The mean M-F difference is 1.40 years, in favor of the boys, CR 1.26. The mean total norm is 14.10 years, SD 2.44.

The performance of the feeble-minded subjects coincides with that of the normal subjects up to SA 11-12. A comparative central tendency cannot be computed. The fragmentary data beyond SA 11-12 show 37 per cent at SA 12 (N=15), 43 per cent at SA 13 (N=7), 50 per cent at SA 14 (N=6), 50 per cent at SA 15 (N=4), and 100 per cent at SA 16 (N=5).



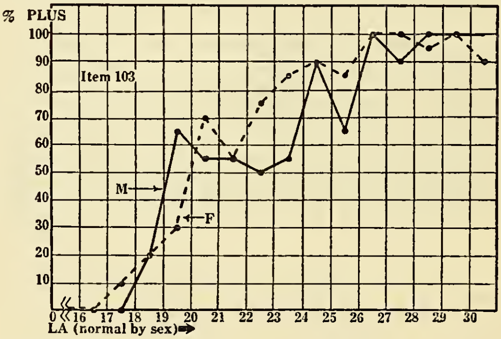
ITEM 88: *Engages in adolescent group activities.*

	Med.	*Mean*	*SD*	*CR*		*Med.*	*Mean*	*SD*	*CR*
M:	13.87 ?	13.40	2.44		N :	14.63	14.10	2.44	
F:	15.00 ?	14.80	2.25		FM:	-	-	-	
D:		-1.40		1.26	D :		-		-

ITEM 103. (LA 21-22) *Assumes responsibilities beyond own needs.*

This is logically an extension of Item 101 of the self-direction category, and reports of its performance might well enough be obtained in that connection. The item is placed in the socialization category because of its broad social bearing.

The normative performance rises rapidly from LA 17 to LA 20 but then "tails off" somewhat slowly and irregularly. Maturation in the later years is apparently overlaid with individual differences, especially among the boys between LA's 19 and 25 years. Although the graph reaches 100 per cent of passes at LA 26 it is slightly unstable thereafter. If the individual failures (one for men and 1.5 for women) beyond LA 26 are ignored, the mean total norm is 21.83 years, the mean versus median difference 2.16 years (in favor of the median), and the mean M-F difference 1.17 years (in favor of the women).



None of the feeble-minded S's pass this item.

ITEM 103: *Assumes responsibilities beyond own needs.*

	Med.	*Mean*	*SD*	*CR*
M:	20.85 ?	-	-	
F:	20.00	-	-	
D:		-		-
Tot.:	19.67	-	-	

In this item, the S contributes effectively to the care and support of others through personal or financial assistance, or shares in these responsibilities beyond the point of merely managing his own affairs to a self-sufficient degree. These "others" may be relatives, dependents, friends or protegees; the activities may include family responsibilities or inter-per-

sonal and "good neighbor" helpfulness of practical moment; and the performances may represent financial or personal aid. This item represents the mature onset of that group of adult items where family responsibilities are successfully discharged or altruistic assistance is offered beyond merely juvenile obligations and sentiments. The performances are to be habitually characteristic of the S rather than temporarily casual or intermittent. The beneficiaries may vary in kind or number, and the material assistance may fluctuate from great to small, but the S after satisfying his own needs gives material aid and comfort to others.

Performance on this item is influenced by personality and social circumstances as well as by social maturation. Introversion, inculcated sense of extra-personal obligation, early marriage, fortuitous situations, social-economic circumstances and the greater tendency among women to assume responsibilities for others all combine to mingle individual differences with maturational tendencies. In earlier items the influence of maturation obscures such fortuitous individual differences, but as the adult limits of maturation are approached the uniqueness of performance in relation to other variables becomes more apparent.

The earlier items were formulated with these considerations realistically in mind, with such varying degrees of success as the data demonstrate. Other items which proved less successful were rejected. But between LA's 20-25 we must reckon with personal differences rather than similarities in mature competence. Here the items tend to become alternative rather than sequential, as is evident from the fact that the total scores from LA's 20-25 and thereafter are "smoother" than are the item scores in the same range (cf. p. 177).

ITEM 104. (LA 25+) *Contributes to social welfare.*

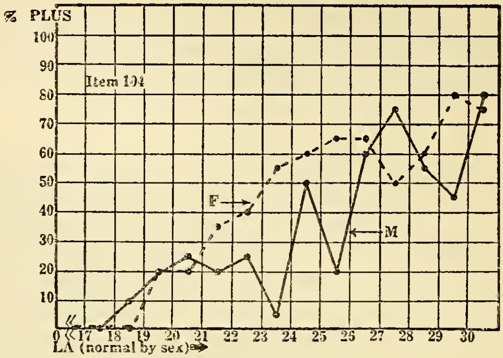
This is an extension of Item 103 involving active participation in socially helpful altruistic ways, such as collaborating as an active worker in, or giving financial support to, community and public welfare enterprises. This is revealed in personal activities outside the ordinary demands of one's major occupation and by active membership in semi-professional, or semi-official social welfare groups, such as parent-teacher associations, church guilds, health promotion groups, occupational organizations, charitable activities, civic and cultural movements, and the like.

The progression for the normative women proceeds smoothly though slowly from LA 18 to LA 25; thereafter the maturation curve is irregular, reaching its highest point at LA 29 with 80 per cent success. Median performance is reached at LA 23.17 years. The mean of successes for LA 25 years and beyond is at 66 per cent.

The normative men show marked irregularity of maturation and at lower levels than the women. An "awkward" median is calculated at 27.38 years. The mean of successes for LA 25 years and beyond is at 56 per cent.

The total normative maturation is slow and irregular with awkward median success at approximately 25 years. The mean of successes after LA 25 years is at 61 per cent.

None of the feeble-minded S's pass this item.



ITEM 104: *Contributes to social welfare.*

	Med.	*Mean*	*SD*	*CR*
M:	27.38 ?	-	-	
F:	23.17	-	-	
D:		-		-
Tot.:	25.03 ?	-	-	

The activities encompassed in this item should be such as to give reasonable promise of improving social welfare whether or not at the time such work might seem somewhat misguided, or not in accord with social tradition. Here the examiner must be careful to avoid reflecting his personal prejudices for or against the S, or in respect to the type of work done, or its final social value. The merit of such work must be judged in terms of earnest purpose, since promotion of social welfare proceeds experimentally or somewhat adventitiously, and some well-intended movements may prove socially harmful. Merely bizarre, "crackpot," or sentimental "uplift" activities, and those pursued for purposes of personal prestige or popular approval may well be viewed with some reservations. The examiner must be both generous and cautious in evaluating such activities. He may properly resort to the immediate public favor with which they are viewed, even though such social endorsement may be ill-considered. Presumably the S will engage in a sufficient number and variety of such activities over a considerable period of time to render suitable scoring more evident than might at first be supposed possible.

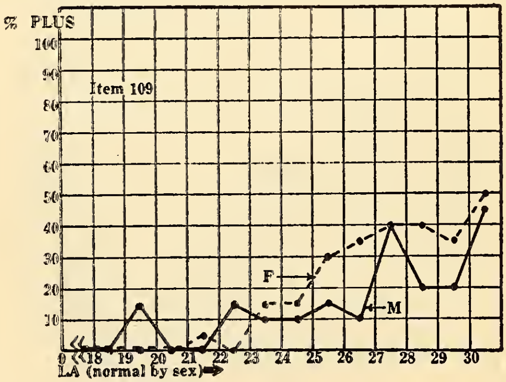
Many occupations aim to improve social welfare. These include such callings as the ministry, teaching, the arts, science and invention, manufacture and distribution, social welfare, politics, medicine and so on through a long list. The criterion here might well be whether the individual's purpose in pursuing such callings is altruistic or selfish. A more strictly objective criterion, however, is that of outcome rather than motive. It therefore seems wiser not to credit this item in terms of the ordinary consequences of those occupational callings which would automatically include its caption title (since this would automatically give double credit to many S's on Item 106), but to require performances outside such callings or beyond their ordinary expectation. Nor need the examiner concern himself too seriously with the problems of immediate motive or remote outcome. He will do better to evaluate the performances at issue in their more immediate aspects.

ITEM 109. (LA 25+) *Inspires confidence.*

This enlarges Item 103 in a somewhat different direction and represents social maturity from the standpoint of the substantial comfort and sound counsel which is sought from the S by others in times of stress or need. In satisfying this item the S is found to be helpful in emergencies, shows acknowledged or effective leadership, is generally rated as a person of sound judgment. is consulted and relied upon in times of serious trouble, or meritoriously fills positions requiring trust and confidence.

The normative performance reveals a definite maturational trend for women between LA's 22-30. Among the male subjects this trend is less obvious (more marked individual differences) and at a lower level. Median success is approximated for both sexes at LA 30. The mean of successes for LA's 25-30 is at 38 per cent for the women, 25 per cent for the men, and 32 per cent for the total.

None of the feebleminded S's pass this item.



ITEM 109: *Inspires confidence.*

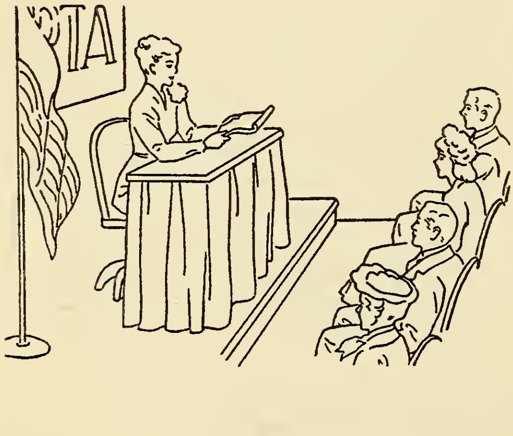
	Med.	*Mean*	*SD*	*CR*
M:	-	-	-	
F:	-	-	-	
D:		-		-
Tot.:	-	-	-	

It might be questioned whether the intent of this item was carefully retained in gathering the normative data. From *a priori* reasoning the item should reveal comparatively rare success as a special (personality?) attainment at the adult level of maturity. However, the item is unavoidably related to occupational pursuits and its performance reveals many specific forms in relation thereto. Hence the *generalized* intent of this item is overshadowed in fact by the manifold forms of its expression. Even so, one may well question whether one-third of all subjects of LA 25 and over satisfy the requirements as formulated.

As for Item 104, many occupational pursuits automatically may be assumed as including success on this item. But such success should be specifically assured rather than assumed. It is particularly necessary to insure that a person who fills a position which presumes trust and good judgment does in fact command (even if he may not merit) the confidence which that position implies.

ITEM 110. (LA 25+) *Promotes civic progress.*

This extends Item 104 to superior aspects of social leadership.



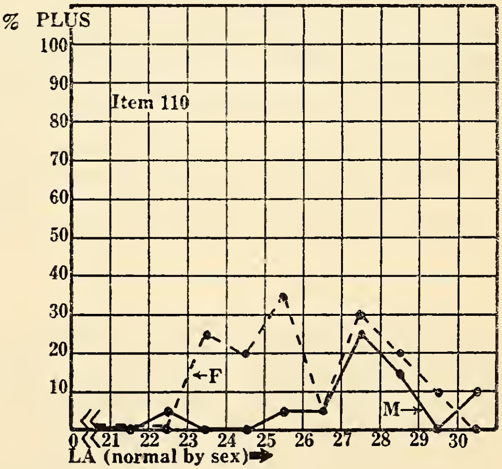
The performances include active enterprise in advancing civic welfare beyond the ordinary limits of good citizenship and immediate occupation. Evidence of this may be found in vigorous membership in prominent professional, commercial, occupational, fraternal, religious, civic, political and other organizations for improving public affairs.

The diversity of civic activities prevents their inclusive enumeration. The leadership involved is presumed to represent genuine social service even though those participating may receive personal advantages therefrom in fame, fortune or other satisfactions.

In this and in similar items the point of view adopted is realistic rather than morally virtuous. It is tempting to expatiate on the essentially egocentric nature of all human enterprise, whether apparently to the advantage of the person represented, or whether pursued impersonally or even to his private disadvantage. Social progress rises above both protagonists and antagonists—some saints misguidedly retard progress while some nether souls unwittingly advance it. Here again the examiner is required to exercise some discretion as to the manner in which as well as the level at which these activities are pursued. Caution is also necessary in passing judgment on the social merits of the performances. Thus, many well-supported programs for civic betterment may reflect interests which however beneficently conceived may really work toward civic deterioration. Again the examiner must be careful to avoid personal prejudice respecting such movements as they may agree with or conflict with his own social preconceptions.

As in Item 109, the intent of this item seems to have been rather loosely construed in the normative scoring. The normative maturation curve for women shows a rise and fall between LA's 23-30 +, with a peak of 35 per cent at LA 25 and a mean success of 18 per cent for the total period. The curve for men resembles the curve for women but with delayed onset; it reaches a peak of 25 per cent at LA 27 but thereafter falls to zero per cent with mean success of 7 per cent for the total period. The total curve (both sexes) shows a mean success of 12 per cent for LA's 22-30+. Hence the data suggest a spread of individual differences at a superior adult level of maturity rather than a consistent maturational trend. The influence of age seems rather ambiguous.

None of the feeble-minded S's pass this item.



ITEM 110: *Promotes civic progress.*

	Med.	*Mean*	*SD*	*CR*
M:	-	-	-	
F:	-	-	-	
D:		-		-
Tot.:	-	-	-	

The sex difference on this and related items may not be so spurious as at first appears. While the normative curves "standardize" (as scored) at higher than anticipated per cents of passes, the sex difference may reveal a relative precocity of social participation which can plausibly be supported by other evidence. Women tend to be socially aggressive at earlier ages than men, who take up such concerns only after having laid an assured foundation of self-sufficiency.

ITEM 115. (LA 25+) *Shares community responsibility.*

This is a higher level of Item 109. Its performance is defined as participation in the general management or control of large financial responsibilities, or extensive employment, or major leadership in such fields of social welfare as science, commerce, the arts and professions, government, and so on. This may be witnessed by holding major positions of public trust or by other civic and philanthropic leadership where effective devotion to human progress is at a premium. The item may be considered occupationally as well as extra-occupationally.

None of the normative S's pass this item. This means that the normative sample was not sufficiently extended to encounter even a single instance of this advanced performance. In a large random sample this item probably would not be passed by more than one person in several hundred adults. And since life age is probably a relevant factor, successful performance on this item would seldom be found below LA 30+ years. The comment on Items 104, 109 and 110 pertains also to this item at higher levels of distinction. An instance of individual success is found in Chapter 8, Illustrative Examinations p. 308, and of near success on p. 332.

None of the feeble-minded S's pass this item.

The criterion of habitual performance may be relaxed although not ignored on this item. Successful performance is almost inevitably transient between the period of prime adulthood and senescent decline. Within this age range the S may pass the item over a short period of time, and may do so for numerous or varied performances of high merit or for occasional performances of very high merit. Still others may succeed whose glory may only be thrust upon them by circumstances rather than merit. Not all of us are rewarded according to effort or desert; the criterion is again realistic rather than academic.

ITEM 117. (LA 25+) *Advances general welfare.*

This is a superior aspect of the preceding items in this category from Item 103 forward. It comprehends the S's having attained wide recognition for promoting human progress in important directions. This may be done through very large scale responsibility in the management of public affairs or through the impetus given to movements of fundamental social value. This may be accomplished in some instances through occupational activities as a superior aspect of Items 114 and 116. Thus the S may have promoted major scientific discoveries or inventions, created industrial enterprises, accomplished important public welfare legislation, exercised outstanding leadership in religious, cultural, patriotic and similar fields, or contributed heavily to philanthropic enterprises. While this may be done somewhat humbly, or the recognition for such efforts may be obscure or delayed, and it must be conceded that some individuals attain to positions of public trust and the management of large affairs somewhat adventitiously, in general such positions must be more or less earned or at least held by merit.

None of the normative S's pass this item. Comment on the performances involved is *a fortiori* similar to that for Item 115.

None of the feeble-minded S's pass this item.

Summary. In review, the items of this category fall principally into two major divisions, (a) those pre-adult performances which principally reflect social participation through play and recreation which may be taken at successive life-age stages as measures of social maturation, and (b) those in the adult period which reflect contributions to general welfare.

In considering the recreational group the examiner will meet with some difficulty from the point of view of individual differences and the influence of circumstances of time and place and stimulation. As already noted, these activities vary with social and economic environment, with sex, local and temporal convention, personal inclination, and so on. Nevertheless the data reveal that in spite of such variables the items do "standardize" rather well, and are reasonably well validated, at least for these population samples.

The underlying influences must of course be taken into account for purposes of interpretation, but should not be given undue weight for factual scoring. Thus the naive versus the sophisticated type of person, the inactive versus the active, the introvert versus the extrovert, will be fairly evident, but these differences will appear as qualities observable at all levels of maturation rather than as basic determiners of those levels. The problem of item formulation has been one of expressing the levels at which these qualities of performance least obscure the degree of performance. In elaborating the limited scope of these definitions the examiner will be materially assisted by familiarity with scales of developmental interest such as those prepared by Furfey and by Rogers. Further aid will be derived from consulting various personality schedules with which the professional student will be familiar.

A more serious difficulty is that of evaluating the influence of life age on performances which are so dependent on age that they may be outgrown with advancing years. Such items are somewhat dubious measures of social competence even though they may succeed in revealing social maturation. The general and somewhat arbitrary rule here is to score as plus those items which are normally outgrown with advancing age provided the higher items in the same sequence are scored plus (see Chapter 7). Strictly speaking, the recreational items are not true measures of social competence except as social effectiveness depends upon social acceptance as one form of social participation in a gregarious society.

The adult items in this category may be viewed as extensions of the self-direction items, but with a beyond-self orientation. It is assumed that the performances are sustained for a fairly definite period of years, that they reflect basic social competence rather than opportunistic capitalization of circumstances, and that (as the items increase in difficulty) they are extended in scope from the family to the neighborhood, the community, the country, the state, the nation, and even among nations.

The student will readily recognize some of the essential difficulties encountered in the formulation of these adult socialization items from the point of view of social philosophy. We have been at some pains to avoid the direct expression of moral and ethical virtues. But these have been by no means ignored, since such values are assumed to be somewhat inherent in each of these performances. What is of particular difficulty in these items is to consider them in terms of acknowledged values. Yet it is obvious that in the beginning most movements for improving social welfare are viewed conservatively if not with suspicion, and on the other hand, many such movements are merely smug or self-interested expressions of popularly approved benevolence. In the problems of paternalistic or authoritarian versus democratic conduct of social affairs it is not for us to pass judgment, but the formulation of these social patterns must provide ample leeway for individual expression in motivation.

A further difficulty arises from the fact that the superior adult items represent the extreme upper limits of social maturity as we have been able to conceive them. They cannot be standardized as average performances because comparatively few S's attain such performances. Consequently, the calibration of such items is limited by the impracticability of obtaining extensive data, since by definition these items will be performed by only the exceptional person. Some clue to this is found in the total-score standardization norms, which reveal the average adult score at a total of 105 items. Consequently, some of the final twelve items for the Scale as a whole will be failed by the average adult and only the exceptionally superior person will pass more than a few of these highest items. Indeed, the 99-percentile score for our experimental sample is only 110 points for LA 25+, leaving 7 additional points for the exceptional individuals in larger samples. However, in formulating these superior items, we have been guided by the achievements of particular individuals of acknowledged social leadership not included in the statistical sample (Chapter 8, Cases II and IV). In doing so we have employed observations as to the apparent basis for such leadership in a number of outstanding individuals, both as public figures and those of lesser notoriety whose attainments have had perhaps deeper if not wider acclaim.

The normative sex differences in this category are small in size and of low statistical reliability. The highest CR is 1.26 (Item 88) with a mean M-F difference of 1.40 years (one-tenth its base) in favor of the boys. In the superior adult items statistical comparisons are not feasible because of incomplete normative curves, but the women show some tendency toward earlier success on these items as scored.

Summary of Item Data

Socialization Category

(From Tables 2 and 9)

	Normative by sex						Normal vs Feeble-Minded					
Item	M	F	SD_m	SD_f	D	CR	N	FM	SD_n	SD_{fm}	D	CR
4	.30	.30	—	—	0	—	.30	1.05	—	.60	—.75	—
14	.75	.65	.55	—	.10	—	.70	1.35	.48	.49	—.65	4.14
27	1.55	1.45	—	.52	.10	—	1.50	1.95	.47	.64	—.45	2.47
46	3.40	3.15	.68	1.12	.25	.57	3.28	3.20	.93	1.15	.08	.24
49	3.80	3.70	.99	1.24	.10	.19	3.75	4.45	1.12	2.05	—.70	1.31
56	5.05	5.20	.61	.69	—.15	.48	5.13	6.20	.65	2.31	—1.07	1.95
59	5.55	5.70	.98	.96	—.15	.33	5.63	7.50	.98	1.25	—1.87	5.15
68	7.80	8.75	1.44	2.00	—.95	1.16	8.28	7.25	1.81	1.21	1.03	2.07
69	8.05	8.50	1.40	1.66	—.45	.63	8.28	8.43*	1.55	1.68*	.15	.29
85	11.70	12.90	2.49	3.03	—1.20	.92	12.30	—	2.84	—	—	—
88	13.40	14.80	2.44	2.25	—1.40	1.26	14.10	—	2.44	—	—	—

The feeble-minded comparisons show three items (Items 14, 27 and 59) with statistically significant CR's (4.14, 2.47 and 5.15 respectively) and with amounts of difference fairly high in proportion to their bases, though small in amount. All of these are in favor of the normal subjects. Item 68 has a CR of 2.07, and a mean N-FM difference one-seventh of its base, in favor of the feeble-minded subjects.

GENERAL SUMMARY OF ITEM SPECIFICATION

In closing this detailed discussion of the items of the Scale, it is advisable to recapitulate some of the general principles on which the presentation has been based.

The student who wishes to use the Scale with only casual effort may be disappointed that so few concrete illustrations have been offered. To him the discussion may seem too generalized if not actually vague. We confess at once that the introduction of specific examples would be a serious labor. We have elsewhere expressed the opinion that such details are both impracticable and inadvisable.

The items have been formulated so as to provide for a wide variety of activities and so as to allow for unavoidable variations in time, place and circumstance. Consequently, any attempt to provide more detailed exposition would involve tedious multiplication of specific circumstances; far from satisfying the examiner this might serve only to confuse him. Adequate exemplification would also tend to circumscribe the definitions, since many students would be inclined to interpret the items in such specificity rather than in terms of central principles. To safeguard the basic definitions, the equivalents would therefore need to be sufficiently numerous to provide for the major contingencies that are most likely to be encountered, and this in itself would not satisfy the examiner because where he will most need help is in the scoring of isolated examples of the principles involved. Moreover, specific instances would be difficult to formulate because we are dealing with such a complex and synthetic relation of abilities, and such a wide variety and range of subjects. Instead we have prepared (Chapter 8) overall orientation in a number of illustrative case studies displaying the procedure as a whole.

We have attempted to assist the examiner in interpreting the items as to the specific performances likely to be encountered by indicating repeatedly the essential issues involved. Indeed, we fear the student may be somewhat harassed by the repetition of these suggestions not only in the general statement of technique, but also in the general comment introducing and summarizing each category, and by more specific comment accompanying each item. This repetition is designed to remind the examiner at various points of the need for thematic orientation.

We have suggested for example, that the items are not concerned primarily with psychological ontogenesis, but rather with the capitalization of all personal aptitudes for socially significant performances. We specifically disclaim any attempt to reveal the psychological evolution of the individual at any stage or for any process or with any continuity. Where we have commented upon the psychological features of the items this has been done only to assist in the interpretation of the items in social situations. Hence we have not attempted to present a scheme of mental development (although the item data do afford a substantial body of knowledge for genetic psychology), but on the contrary have avoided this as far as is consistent with the clear presentation of items in terms of their social relevance.

Neither have we attempted to evaluate in any specific manner the complex of abilities present in given performances, nor even to indicate in any major way the relative importance of these elements in social adaptation. Since it may be assumed that this scale will be most commonly employed by examiners with psychological orientation (whether or not they may be professional psychologists), this caution can hardly be repeated too often, namely, that our concept of social maturation is based on evidence of personal independence and personal responsibility and on the resulting effect of these as promoting the social competence of the individual in miscellaneous directions and from the standpoint of maturation. The examiner will, of course, always be interested to assay the conditions surrounding the performance, and this *interpretation* of scores as contrasted with the actual scoring itself becomes his clinical responsibility.

We have at various points suggested that the professional examiner must be widely informed with respect to the performances which constitute the Scale. He is therefore expected to be familiar with the psychological principles and facts of human development and also with the special fields of behavior in which these aptitudes are reflected. In evaluating the social performance of infants and children he must be discerning in regard to patterns of domestic life, and well oriented in child training, parent education, and child conduct, with due regard for the cultural evolution of children and youth at successive ages. In scoring the communication items he must be familiar with the subject-matter and practices of scholastic education and the social capitalization of educational attainments. Here the examiner will note that education usually progresses appreciably beyond the social uses to which such achievement is put, and then often only fortuitously. Indeed, a major problem of public education is to teach not only tool and content mastery but also their uses, and to develop not only personal initiative but also to encourage the habitual employment of such resourcefulness in everyday situations. Similarly the examiner must be widely informed as to the conditions of employment and the principles and facts of industrial psychology, occupational practice and vocational guidance.

In view of these considerations, it will readily be appreciated that although the Scale may be used crudely by a layman, and even under these conditions suprisingly useful results will often be obtained, the scientific and professional use of the Scale as an instrument of some precision requires insight, resourcefulness and a wide range of professionally organized information in addition to orientation in the technique of clinical interview and knowledge of individual differences.

A further caution may be offered regarding the formulation of items in relation to their definition. Usually the definition of the item includes a wider scope of performance than is epitomized in the item caption. These captions should not therefore be taken too literally, but should be considered as a brief conventional way of presenting the main requirement of the item. This abbreviation of item captions is for convenience of treatment and provides a succinctness of expression which has certain advantages for easy reference.

It is particularly important to caution the examiner against making too generous allowance for the limiting circumstances under which an item may be performed. The items have been defined and standardized so as to meet the requirements of the ordinary middleclass U. S. American environment. Some clue to the scoring of each item is found in its age value as derived from the standardization sample which has provided the preliminary calibration of the Scale. This sample has been described and its representativeness can be judged in terms of this description. Whether it is actually representative or adequate is not at the moment a critical issue. Some standard must be adopted as a point of reference, and for this purpose all that is necessary is that the population employed be adequately defined. To explore a larger universe for a more representative standardization is certainly to be desired.

These difficulties obtain for rural as contrasted with urban areas, for variations in social milieu and geographical locus, for differences in color, or nationality origins, for social-economic class within a given community, and so on. The Scale as here reported gives one standard of social maturation. The universality of this standard can be appraised, or the standards modified, only by more extensive work.

The examiner is also cautioned in using the Scale with variously handicapped groups first to employ the Scale as designed for the standard (non-handicapped) sample. The limitations to social maturity or social competence which are imposed by such handicaps as blindness, deafness, crippling, mental or physical deterioration, environmental restraints, lack of opportunity, parental solicitude, and so on, should first be expressed in the actual performances of the individual as reflected in the normative scores. The influence of these handicaps from the point of view of interpretation as related to the specific developmental aptitudes of different types of subjects is a matter for clinical evaluation based on differential norms established for particular kinds and degrees of handicap. Thus the developmental history of the individual, his social opportunities, his environmental limitations, his mental, physical or social restrictions, his motivation, the conventions of time or place, and so on, are all factors in the item scores which should be evaluated *after* the standard score has been assigned. What is desired here is to determine the competence of the individual in terms of typical environments and defined social groups, and for this purpose no apology or allowance should be made for those circumstances outside the individual's personal control which handicap his performance. Thus in interpreting the performance of adults, one may find it desirable not only to determine the present social competence of the S, but also to determine his competence at his prime so far as this can be determined by applying a retrospective examination employing the Scale as at the age when the S was at his optimum level of development. This is particularly important in evaluating the scores of individuals in a state of senescence or of mental or physical deterioration, and is of critical importance when the Scale is employed in family history studies.

Again if the Scale is employed in foreign or primitive environments, no allowance need be made initially for variations in these environments or in the persons examined until after the standard Scale has been applied. In many environments the standard items will at once appear absurd, but *this in itself becomes a measure of the variation in environment.* The adaptation of the Scale to foreign and preliterate environments will therefore require, first, the use of the standard Scale, and second, the derivation of substitute scales which would be more in accord with the particular environment or types of subjects in question. The comparison between the standard Scale and such substitute scales would then itself constitute a useful means of comparing different environments and different types of subjects.

Still another consideration is the question of sex differences throughout the Scale. We have elsewhere questioned the desirability of constructing a single scale which can be employed with either sex, and have noted that items which in the preliminary standardization showed significant sex differences were later eliminated. A more detailed discussion of this problem is found in Chapter 9.

There is some question regarding the propriety of avoiding sex differences, especially at the adult level, in view of the different roles played by the sexes in societal organization. The social status of woman is materially altered through marriage and her responsibilities are thereby reduced or inhibited in some directions, but enlarged or facilitated in others. This same influence is reflected to some extent among married men, but much less conspicuously. More serious is the generally assumed social superiority of men when compared with women in almost every field of social endeavor outside the home. This is a debatable question; much evidence indicates that men are not superior to women in general ability, but do excel them in some directions and are excelled by them in others. But when the performances of the sexes are viewed in terms of socially significant achievement, the superior accomplishments of men are readily evident in nearly all fields such as government, business, industry, the professions, the arts, literature, and so on. Whatever may be the causes for this superiority in male achievement (whether due to differences in organic structure, biological destiny, social division of labor, social history, or what not) it seems clear that there are few matriarchal societies as compared with patriarchal, and relatively few superior attainments of women as compared with equal attainments by men.

Both current and historical observation suggest that the material progress of societies as revealed in governmental structure, military conquest, exploration, social institutions, knowledge, invention, and the arts, derives principally from men. On the other hand, as Briffault contends, the *cultural* progress of society while *effected* by men is basically *prompted* by women. The biological basis of society reflects a tendency for women to improve their status through marriage by more selective mating than men display. We are thus confronted with a paradox in which we find that the basic *motivations* for social progress are provided by the women whereas *implementation* of social organization is carried out by men. The urge to power and self-expression is exercised in quite different channels by men as compared with women, but the ultimate control of social organization would seem to rest with the women for whose favor men compete and from whose inspiration their aspirations so frequently and fruitfully derive.

This fundamental difference in the psychology of the sexes and its influence on the social destinies of the sexes is clearly revealed by Esther Harding who emphasizes the fundamental feeling-tone motivation in women as contrasted with the rationalized activities of men. The intricate consequences of these fundamental differences have been to some extent avoided in constructing this scale which as now constituted affords about equal recognition for men and women, but may favor men in spite of a definite effort to equalize the performances of the sexes in the adult period. Further evidence on sex differences in item and total scores is presented in Chapter 9.

As to the validity of the items, this is found in the internal consistency of the normative data as well as in the comparative evidence from the feeble-minded validation sample. We may note again the extraordinary similarity of the normative LA versus feeble-minded SA item-maturation curves. This obtains in spite of an advantage of 15 to 30 years in life age on the part of the feeble-minded subjects and in spite of favorable environmental stimulation. Specific differences of statistically reliable significance and meaningful amounts apparent on some items do not contradict the essential similarity of the general dependence of item performance on total maturation with relatively little apparent influence of other variables.

The dependence of social maturity on mental maturity is self-evident and in accord with rational expectation. Yet in spite of long experience and observation, the specific relation of social competence as revealed in the item performances to total developmental retardation continues to impress us as little short of astonishing. The practical implications of these results for classification and training programs for the mentally deficient hardly require further specification.

Finally, the examiner should be clearly oriented regarding the relation of environmental stimulation and restraint to social maturation. We have repeatedly emphasized the role of time, place and social circumstances. To these should be added the influence of sex, age *per se,* social-economic status, conventions, parent-child relations, regimentation, social crises (political, financial, military) and so on. The *mode* of social expression, but to a lesser extent the *level* of performance, will obviously be affected by these variables. Our conviction, however, is that in respect to the relatively universal activities comprehended in the items of this scale the effect of these variables is much less potent than is plausibly anticipated. Indeed, the items have been formulated with this outcome as one criterion for the retention of items.

But since these issues are susceptible to experimental investigation we need not here insist upon their cogency. Some of these variables are reported upon in this Chapter; others are considered in Chapters 12 and 13. The procedure, therefore, is subject to experimental control. Certainly the S is not expected to mature in a social vacuum, but rather to assume his pyschobiological destiny within a situational matrix (or more correctly a succession of matrices). But he reacts *upon* as well as *to* this milieu, modifying it as well as being modified by it. The Scale affords, then, an instrument for evaluating such interaction.

PART III

ADMINISTRATION OF THE SCALE

Chapter 7. Procedures and Scoring
Chapter 8. Illustrative Examinations

7

Procedures and Scoring

> *The trend toward interpreting child training in terms of capacities and needs at various levels of childhood, rather than on the basis of preconceived adult standards, has done a great deal to make all our ideas of education more realistic, and by so much has enriched children's daily experience of living. The findings of psychology and physiology have made important contributions to this point of view by giving us an authoritative gauge of what we may fairly expect of a child at any given time. But in comparing him with his age group we must guard against laying too heavy emphasis on either short-comings or precociousness.* — RUTH BRICKNER

General features. The very simplicity of this method of measuring social maturation is also paradoxically a serious obstacle to its successful use. The procedure is so natural, and the content of the items so obvious, that the examiner may ingeniously overlook numerous pitfalls. "It can't be done" now becomes "Why, we've always been doing that!"

The Scale lends itself to a variety of uses (Part V), and these require corresponding degrees of sophistication. For informal use: (1) a record blank may be handed to the informant with the request that he mark the items plus or minus without more adieu, preceded perhaps only by a general statement of what it is all about; or (2) the examiner may himself ask the questions with only minor elaboration and without precise regard for the habitual nature of the performances, that is, without establishing all the factual and temporal aspects of each item; or (3) the examiner may use the Scale as a guide to clinical interview, using such items as seem relevant and discarding others and summarizing the whole as a more standardized procedure than he might otherwise have employed.

Obviously none of these ways of using the Scale can be considered professionally thorough for standard practice. If the method is to be used with clinical accuracy, careful attention to detail is necessary. For this purpose the examiner must be broadly experienced in general techniques of clinical psychological casework or the equivalent in similar disciplines. Standard application of the Scale requires skilled interviewing rather than direct examining, or the psychometric type of "testing."

The unskilled interviewer tends to demand objective instruments which provide fixed questions and exact scoring. A close approximation to such rigidly objective method is exemplified by the Binet-Simon scales for measuring intelligence. Such a scale can be given by rote and scored by formula; its routine administration requires clerical conscientiousness, but little clinical versatility. Its more thoughtful use and interpretation, however, demand extensive clinical sophistication. The Social Maturity Scale because of its apparent simplicity affords more latitude but requires greater examining skill than do most standard psychometric procedures. The broader resourcefulness required corresponds to that needed for psychotherapy. The requirements for scoring are rather more objective than those necessary for the interpretation of results from projective techniques.

The fine points of administration and scoring can therefore only be suggested through general and specific instructions. These cannot be formulated with finality since they would otherwise hamper the examiner by inhibiting flexible adaptation to particular situations with which he may be confronted. Consequently the principal methodological difficulty in expounding this scale has been to mediate between instructions which on the one hand may seem too vague, and on the other hand too rigid; which are definite enough to hold the examiner clearly within limits, yet flexible enough to allow for variable exigencies without serious loss of essential uniformity (cf. pp. 59-63).

This is a somewhat disconcerting feature of this scale when first employed by examiners accustomed to the formal objectivity of routine psychometric examining. The Social Scale demands constant alertness on the part of the examiner for adapting himself to those contingencies which require circumstantial modification of questions and scoring. The examiner who accepts this appeal to his ingenuity and meets the challenge candidly, will find the method precise enough in both instructions and scoring. Evidence for this is found in the experience of competent examiners. Such competence can readily be gained from thoughtful practice based on careful study. The more scientific answer is found in the evidence on item calibration, total-score standardization and overall validation (Chapters 6, 9, 10 and 11). Additional assurance is offered in the results obtained from the numerous application studies reviewed in Chapter 13 and the clinical applications in Chapter 14.

Rapport with informants. The standard examination is conducted by personal interview with a single informant. This will be someone intimately acquainted with the person under examination, usually a parent, near relative, foster-relative, close friend, institutional attendant, or the like. Or the examiner may be required by circumstances to use as informant any available person from whom a presumably satisfactory examination can be obtained. In the self-informing type of examination the subject will himself serve as informant (p. 292).

For the standard procedure it is not necessary for the examiner to know or to see the subject. Indeed, to do so usually prejudices the examination. The criterion of consistent fulfillment of the performances requires reports of continuing performances which the examiner need not or cannot derive from direct observation. If the examiner is personally acquainted with the S, he is likely not to pursue the analysis of the Scale items to that degree of completeness which is necessary for assigning an unprejudiced score, but might substitute his own gratuitous opinions instead.

This feature of examining an individual *in absentia* greatly increases the usefulness of the method, making practicable the examination of persons inaccessible or resistive to direct examination, and also permitting retrospective examinations covering the life history of the individual at successive age periods, or at critical moments in that history All that is necessary is that competent informants be obtainable who can and will supply adequate information. This makes it possible to obtain several examinations for the same subject from different informants, or for different subjects from the same informant.

The examiner's first problem is to insure cooperation with the informant. Sound factual bases for scoring each item must be assured. Consequently, it is necessary to evaluate the willingness, honesty, accuracy, candor and freedom from prejudice conveyed by the informant. To this end the examiner initially employs questions which will reveal the informant's degree of acquaintance with the S, his indulgence or hostility toward the examiner or the S, his vacillation in judgment, wishful or vague impressions, virtuous opinions, and so on.

Skillful interview quickly reveals the extent to which the informant is acquainted with the person examined and otherwise able and willing to supply the necessary data without prejudice. The results of our many thousands of examinations, including resort to different informants and different examiners for the same subjects, give experimental confirmation of this assertion. The inadequately informed, prejudiced, inarticulate or misleading informant, is quickly recognized by the nature and inconsistency of his replies. Indeed, the greater difficulty is the likelihood that the *examiner* may not be sufficiently competent in developing the interview with that degree of thoroughness and skill which will yield the factual information necessary for stable scoring. Thus the examiner may be led to inferential judgments without obtaining the detailed data essential to unequivocal assignment of scores. Haste in examining may lead to lack of thoroughness; plausibility of the informant may induce the examiner to accept declarative response without supporting detail; or the temporal onset and habitual nature of the performance may be poorly established.

The examiner may discount but should not ignore the informant's mere *opinions*. He should seek constantly to establish their detailed foundations and check this in various ways as indicated below. The examination is to be regarded as incomplete or inaccurate if the examiner doubts that the informant is both candid and adequately informed regarding the S. This condition is generally satisfied by the examiner's shrewd impression, supported by the actual record of information received. It will also be indicated by the number of items scored "NI" (no information), such items to include answers which are regarded as inadequate. It will further be sustained by the inherent consistency of the information from item to item, or from category to category, and by the overall plausibility of the S's aptitudes in relation to the item norms.

Rapport with the informant will depend partly on the purpose of the examination and consequently on the attitudes of the informant with reference to what is at stake. He may be somewhat influenced by unusual circumstances affecting the subject such as blindness, deafness, delinquency, race, color, and possibly defensive or aggressive prejudices. Or he may desire to have the subject admitted to or discharged from an institution, or otherwise advantaged, and this may color the information given. He may consequently dissimulate, malinger, or gratuitously misrepresent the S favorably or unfavorably. These likelihoods require the examiner to continuously evaluate all circumstances attending the examination and to be on guard accordingly.

In dealing with the informant, the examiner must therefore be neither ingratiating nor hostile, neither sentimentally gullible nor unduly skeptical, but amiable, sympathetic and objective.

He must win the informant to an unprejudiced point of view and will accomplish this by a friendly persistence in establishing as accurate information as the circumstances permit. A sense of humor is a definite asset in putting the informant at ease and in persuading him to a higher degree of candor. An *entre nous* feeling should be encouraged while retaining the dignity of the examination free from gossip, undue intimacy or personal inquisitiveness. In short the examiner must be receptive without being naive, and must be circumspect without appearing suspicious, and should avoid projecting his own reflections into the situation.

Finally there is an ethical aspect to the examination which requires that the examiner discreetly respect the private affairs and personal shortcomings of the S as these may become apparent. He therefore will not embarrass the informant by improperly insisting upon such evidence or by making disparaging comments. He will instead help both informant and subject to "save face." He will specifically regard all information as confidential and will assure the informant that no subsequently indiscreet use will be made of the information elicited.

Interview technique. Observing these general precautions the examiner begins a friendly conversation with the informant. He briefly explains the purpose and procedure. He takes the informant into his confidence, appeals to his cooperation and frankness, puts him at ease by a cordial, chatty attitude, and assures him that the best interests of the S will be served by unreserved frankness.

The examiner then proceeds to merge the general orientation of the examination with some overall inquiry regarding the S himself, recording the relevant data under "Remarks" on the record blank. How old is he, what sex, color, race or nationality, marital or social status, religion, degree of schooling, state of health, freedom from handicaps? What are the *parental* occupations, degrees of education, social and economic familial status, personal and group associates? What is the subject's own standing in his family group and community, his interests, friends, activities, experiences, general personality? If the S is handicapped in some way, or embarrassed by special circumstances, the nature and extent as well as the temporal and social aspects of these limitations should be generally reviewed and recorded. Such general orientation may immediately serve as a basis for scoring particular items of the Scale. The examiner then consolidates these general questions with a more specific approach to the direct examination.

This approach immediately reveals the inadvisability of preformulated interview questions. No single system of interview can offer more than an illusion of adequacy for all occasions. The S may be infantile or senile, boy or girl, colored or white, sound or handicapped, free or confined, and so on, and these variable conditions taken singly or in combination must determine the further questioning to be followed by the examiner.

Example. John Picola is a 14-year-old boy of Italian parentage who is in juvenile court for theft of a bicycle. Before disposing of the case the court has referred John for clinical consideration. The court record is meager, but affords some preliminary data which serve to assist the examiner in appraising the honesty and accuracy of the interview. An older sister is the informant. The father works, the mother speaks English poorly, the place of examination is the caseworker's office, the Social Scale is the first detail of preliminary clinical study of the case. John is in detention; the sister has come for interview by telephone appointment; no others present.

Q: You are John's sister, Angela? I want to talk with you about him to see if we can keep him out of further trouble. But first tell me something about yourself and your family.

A: Well, I'm not sure what you want to know. My father is a mason has not been very well and John is not so easy to manage and there are and work is scarce and I am glad I could come instead of him. Mama has my brothers and sisters.

Q: And you? What do you do?

A: I am a counter girl at Kresge's. How old am I? Twenty. I left high school last year. Yes, I graduated, but it wasn't so easy.

Q: And the rest of your family?

A: I am the oldest. Besides John I have a sister in high school and a brother in sixth grade. Yes, they're all right and no trouble at all.

Q: And how are things at home?

A: My mother is not well, as I said, but we manage all right. No, we don't have a car. A telephone? Yes, since last year. How much rent? Thirty dollars a month, but we expect to move to a better neighborhood soon.

Q: And what about John?

A: Well, he worries us a good deal. No, he's not a bad boy, but not so good at school and he runs around too much—No, he's never been in special class, but he's failed twice in school and we wonder if he should go to work.

Q: Is there anything the matter with him? Sick often, or crippled or anything like that?

A: No, he's always been very healthy. Sometimes we think he doesn't hear so very well, and you can't always trust what he says. How old is he? Fourteen last month. Born March 7, 1934. Yes, he was born in Camden, but I was born in Italy before my parents came over.

Q: How do you feel about him?

A: Oh, we all like him, but he worries my mother, and my father thinks he is too lazy. And as I told you, he runs around too much.

Q: How did he get into this trouble?

A: You see, we live near 15th Street and Green Avenue and when children go to the stores there they often come on bicycles. And John was feeling fresh and the other day he took a bike to take a ride. I believe he meant to bring it back, but he ran into a tree and damaged the bicycle and left it there. But they found he did it and so—

Q: Well, when he goes around where does he go? I mean how far and with whom and do you worry about him? (Beginning direct examination with locomotion category.)

Comment. The examiner has thus obtained a general orientation as to the boy, his family and neighborhood from which the direct examination can proceed and against which the results may be interpreted. Such an approach is pursued as informally as possible, sympathetically rather than ingratiatingly, courteously rather than officiously, tactfully and expeditiously but without undue persistence or impatience.

In the above example due regard must be given in the *interpretation* of ultimate score to the presumptive mental backwardness, possible hearing deficiency, incipient untrustworthiness. These items can be checked by other methods. There is an implication of family security, moderate home circumstances, youthful restiveness, probable maternal laxity and paternal severity, and a general picture of social mediocrity. These will be reflected to a degree in the boy's item scores and total score as factual behavior *ad hoc* which must not be confused with the corresponding evaluation thereof.

Categorical sequences. Having established the preliminary conditions with satisfaction, the examiner proceeds with the direct examination. From this point forward the examination is best conducted by following the arrangement of items in their categorical sequences (as detailed in Chapter 6 and abstracted in the condensed manual). The preliminary information obtained from the informant indicates the presumptive levels at which the items within the categories, as well as the categories themselves, are most probably applicable according to the age and presumptive development of the S. The examiner therefore will not find it difficult to know where to begin either as to the sequence of categories, or as to the sequence of items within categories. In the case of young children, the obvious point of departure is in the self-help category. In the case of adults the more obvious approach is through the occupational category. For more general approach, the locomotion category may be used, or the socialization category. A little experience enables the examiner to adapt his approach to the conditions of the examination as indicated by the attitude of the informant, the age or maturity of the S, and the special circumstances surrounding the examination as a whole.

Example. Thus in the example of John Picola above, the preliminary interview leads naturally to beginning the direct examination with the locomotion category. John's age, his sister's comment that he runs around too much, the relation of this to his offense, and the environmental circumstances all suggest this departure.

Q: Well, when he "goes around" where does he go? I mean how far and with whom and do you worry much about him?

A: Of course he goes to school by himself; he doesn't like to go with his brother most of the time. And he goes to the store for my mother. Maybe I don't know what you mean?

Q: I mean how far does he go as a rule by himself, or when he is out with his friends. Does he get into trouble this way, or do you feel somebody should be looking after him?

A: Around home he's all right, but when he's gone all afternoon or out at night very long we start looking for him or we wonder what he's doing. (This reply touches the self-direction category and may be followed up at this point or postponed for more detail later.)

Q: Does he go outside of Camden, say to Philadelphia or Atlantic City?

A: Not unless we are along or he is with someone we know real well. Once he went to Philadelphia and got home all right, but my mother was worried and papa gave him a talking to. He talks about going but he hasn't tried it again. Could he if we let him? I guess maybe, but we'd be worried till he got back.

Q: And here in Camden?

A: He goes more than we think is good for him, with older boys mostly instead of by himself. It's all right if he doesn't go too far from our neighborhood. Sometimes he visits my aunt where he's been before. And as I told you he gets into little scrapes like taking this bicycle. Of course he doesn't have his own money except a little now and then (again touching self-direction category).

Comment. Referring to the item definitions (Chapter 6) and the scoring instructions (later in this chapter), we note that Item 96 (Goes to distant points alone) is failed; 92 (nearby places) is also failed but is emerging toward success since he goes somewhat surreptitiously without approval and might succeed if he were more trustworthy (score is not "no opportunity" since disapproval is not strictly enforced but is due to his immaturity); 77 (home town) is passed marginally (because of mild untrustworthiness); 61 (to school) is passed. The preceding locomotion items (12, 18, 29, 32, 45 and 53) are also passed, being in this case automatically present or assumed in Item 61.

The examiner then proceeds in like manner with the self-direction category for which he has leads on certain items from the locomotion category.

In general, once a category has been started it is best to complete that category before proceeding to another unless special difficulties or leads are encountered which make it advisable to shift to some other category. Since the items are arranged in a standard order of difficulty within the categories, the examiner may conduct his inquiry within the category from easy to difficult items, or from difficult to easy as may be most expedient.

It will greatly assist the examination if the examiner has broadly memorized the items which compose the Scale, their age-group locations, and their definitions for scoring. Memorized familiarity with the categorical arrangement of items will also expedite the examination, since the responses to single questions may often be used as a basis for scoring a whole series of items and lead naturally to well-directed further questions.

It is desirable for the examiner to pursue each related group of items as a unit and then score the items individually on the basis of such unit questioning. For this purpose the detailed item instructions are presented in their progressive sequences within the categories (Chapter 6) rather than in their numerical sequences for the Scale as a whole. The record sheet is arranged with the items in normative sequence (mean LA progression) without reference to the categorical arrangements.

Theoretically, each S is scored on every item, but in actual practice the extension of this principle to absurd extremes becomes obvious. Moreover, since certain of the lower items are prerequisite to success on some of the higher items, in these circumstances inquiries on the higher item will automatically establish the information for scoring the lower items. On the other hand, since all the items are not successive degrees of the same performance, care must be taken to score separately every item in respect to which there might be failure or success regardless of its position in the Scale as a whole. This is particularly noteworthy if special handicaps are present which might cause failure on lower items while not interfering with success on higher items.

For example, we have examined an S of LA 8 years with a final SA score of 8.5 years, who nevertheless failed on all locomotion items above Year II because of specific untrustworthiness. Indeed, it was this behavior problem (a persistent tendency to set fires and be destructive) which brought the child for examination, and the major purpose of the examination was reflected in this particular difficulty.

Likewise in the case of special physical handicaps, such as crippling or deafness, the range of scores may be affected by the specific disability. Therefore, success on lower items may not be automatically assumed in all cases, nor may failure be assumed in all circumstances for higher items. This is particularly true with senescents whose success in the adult ranges in some particulars may be accompanied by failure in the juvenile ranges as a result of infirmity or deterioration due to advanced age.

The examiner is urged to record the essential information on which each item is scored. In doing so he may score a particular item by referring to relevant data recorded elsewhere. Such cross-reference may be indicated by item-record notation such as "see Item —," or "see Remarks." Thus, in scoring "Bathes self unaided," all other items involved in self-help as to cleanliness are scored cumulatively. Similarly, "Cares for self at table," automatically includes all other items on self-help eating, each of which must be established before the total can be assumed. On the other hand, in the occupational category, this continuation is less apparent, so that "Performs responsible routine chores," while including small remunerative work, routine household tasks, and little household tasks, does not necessarily include simple creative work, or use of utensils, or use of pencil for drawing. Thus, some categories are seen to be more definitely progressive in the same essentials than is true for other categories. This is clarified in the definition of items.

Example. In the self-direction category most of the items bear on discretion in the use of money (Items 60, 76, 87, 94, 95, 100, 102, 105, 112). But intervening items in this category deal with more personal forms of responsibility (Items 83, 93, 97, 99, 101) which also involve self-direction. It is noted elsewhere that the categorical arrangements are designed to aid examining; their grouping as to like modes of performance need not be insisted upon.

To illustrate from the example of John Picola, note that the questions on locomotion brought incidental replies on self-direction. These may now be amplified by shifting from the former to the latter category.

Q: You said, Angela, that your brother sometimes goes out by himself during the day. Tell me more about that.

A: I said that when he goes out in the afternoon or at night we don't feel too good about it. My mother likes to know where he is and what he is doing. He is supposed to tell her where he's going and when he is coming back. Generally he isn't gone more than an hour or two unless we know where he is. Almost always if he is away very long he is with older boys instead of by himself. And at night we have to know where he is. He is not supposed to leave our neighborhood in the evening and he has to be home before nine o'clock unless it's something special.

Q: But can't he be trusted alone?

A: Oh yes, when he's here at home he's all right if we're not gone too long, maybe a couple of hours. And when he's doing odd jobs of work (touching occupation items) he is real dependable. It's only that he is easily led by other boys.

Comment. Item 83 (Is left to care for self) is thus readily passed. Items 93 and 97 (Goes out daytime unsupervised and Goes out nights unrestricted) are dubious but must be marked failed. Item 101 (Assumes personal responsibility) is obviously failed.

The restrictions imposed by his family reflect the need for concern in view of John's personal irresponsibility when away from home on his own. But the urge to dominate his own activities is apparent. Items 93 and 97 are emergent and may force themselves in spite of family solicitude and their relatively mature placement in the Scale (being several years above his other performances).

Here we see personal dominance forcing a situation and thereby encountering consequent hazards. John's poor judgment has already led to his arrest for theft as a result of urges which his social immaturity did not enable him to satisfy legitimately.

Q: And you said before something about his having a little money to spend? How much does he have and what does he do with it?

A: Only what he earns at odd jobs, and that's not much, and he is supposed to give it to my mother who gives it back to him a little at a time.

Q: He has no regular allowance even from what he earns?

A: No. Only as he asks for it when he wants to buy something or go somewhere.

Q: He goes to the store for you?

A: Yes. He's good that way. You might think he'd "snitch" some or spend it on himself. But he has always been honest with money. Maybe he's afraid of what papa would do to him!

Q: Well, what money does he spend on himself?

A: I meant to say he has good judgment, too, about money. Much better than in other things, where he is kind of willful. He likes to buy our groceries—makes him feel important. And he does as he is told or sometimes even better. And you'd be surprised how he can make change. They never cheat *him.*

Q: But for himself?

A: He's good at that, too. And my mother likes to have him learn how to buy his own things—like when he needs a cap or have his shoes fixed or he wants some things from a catalogue (touching communication items) like a baseball—which he can get cheaper that way. Once he saved up for a baseball suit. And I guess if we had helped him save for a bicycle he saw at Sears maybe he wouldn't have taken this one.

Q: Does he buy his own clothes?

A: Only little things like a belt or fancy handkerchiefs. My mother goes along when he needs shoes and she likes to pick out his shirts or anything that costs very much.

Comment. We see here responsibility in money matters as a special aptitude compensating for the premature drive for locomotor independence. This is in spite of some scholastic backwardness. And in contrast with parental restraint on locomotion (because of his difficulties in that direction) we observe parental encouragement in handling money (because of relative aptitude in that direction and in spite of limited family resources).

Items passed are 60 (Is trusted with money) and 76 (Makes minor purchases). Items failed are 87 (Buys own clothing accessories) which is, however, emerging, 94 (Has own spending money), and (from logical sequence as well as direct information) Item 95 and beyond in the monetary sequences of this category.

It has proved inadvisable to indicate the categorical arrangement of the items on the standard record blank itself. At first thought, to do so would appear to be an advantage as assisting the examiner in mastering the Scale. Experience has indicated, however, that if the blank alone is used too early in the examiner's experience prior to complete mastery of the instructions, the examiner is likely to be satisfied with less than that amount of detailed information which is necessary to score the items beyond question in terms of their elaborated definitions. If the examiner will err in the beginning in the direction of more than necessary completeness, both as to number of items employed and the amount of information obtained regarding each item, he will subsequently be able to curtail the extent and detail of the examination without detrimental result. If, on the other hand, this curtailment of the examination becomes established before the Scale is thoroughly mastered, then the result is almost certain to lack precision. No measurement scale is entirely free from the influence of the personal equation of the examiner on the probable error of the measure. But such influence can be materially reduced by sound practice.

Habitual performance. The examiner is emphatically urged to avoid inquiring *can* the S do so and so, but rather *does* he usually or customarily do so. All leading questions which might possibly indicate a desired response, as well as all test implications, should be avoided. The examiner is urged to follow general answers with questions designed to produce elaboration of these answers. For this purpose he should avoid interrogating the informant in terms of the item captions, but should phrase the question in some more general form. In this way he may encompass a series of items in a single line of questioning. For example, instead of asking "Does the S eat with a fork," it is better to inquire "To what extent does the S care for himself at the table." Similarly, instead of asking "Does the S wash his own face," it is better to ask "How much does the S do for himself in respect to personal cleanliness." Again, instead of asking "Does the S perform routine household tasks," it is better to inquire "What kind of work does the S do around the house." From such general questions, as contrasted with leading questions suggested by the specific item captions, the examiner may proceed toward the simpler or the more difficult tasks in the same major activity, and so may score a group of items on the basis of a single set of questions.

Consequently in applying the items of this scale, the examiner should inquire as to the time of onset, frequency, manner and extent of the S's performances. Instead of accepting an unelaborated "yes" or "no" to leading questions, he should obtain substantial factual evidence from which *some one else* might form a judgment. Hence the informant is to be asked how often and how long the S has been doing so and so, when he began, how frequently if at all he receives assistance, under what conditions it is done, how the performance is made manifest, what occasion there may be, what hazards or difficulties are evident. On the basis of such evidence, assisted by the standard definition of the item, the examiner assigns one or another of the scores which signify the passing or failing of each item. This is facilitated by the sequence of items in categories which permits ready distinctions as to variety and degree of success. (For simplicity of exposition these details are omitted in the example of John Picola but are elaborated in the overall illustrative examinations in Chapter 8.)

Familiarity with the categorical arrangements of items will enable the examiner to move smoothly from one category to another in spontaneous accord with the informant's responses so that the examination may proceed informally without embarrassing breaks, and without undue abruptness in trend of thought. This smoothness in interview not only assists the examiner to conduct a rapid and effective examination, but also assists the informant to respond more easily, fully and accurately with the information desired. To this end the examiner encourages the informant to respond spontaneously without undue interruption, interspersing only encouraging remarks and specific questions as the occasion demands. If the examiner is unpracticed in such facility, or has not memorized the Scale as a whole, he should work from the manual during the examination, using the categorical definitions of items to guide both the direction and extent of his questioning. Even the experienced examiner should have the manual accessible for ready use, not relying too unreservedly on memory, and should from time to time studiously refresh his technique by frequent review of procedure and scoring.

Scoring principles. It is desirable to record full data and to score each series of items or each category as a whole as soon as the information in that series or category is adequately established. Scoring should not be postponed to the end of the examination, but should continue throughout the examination. This again requires memorized facility which can be gained only by thorough familiarity with the Scale and the item arrangements. It also enables the examiner to check each item fully at the point where this is most practicable and to avoid regret after the informant has been dismissed. The record blank provides adequate space in which the examiner should enter verbatim answers or at least sufficient essential notations for him or for someone else to review the results later if desired.

The examiner should not *infer* evidence unless this is amply warranted. It will not usually be practicable to record all the information received; some of this may have to be generalized inferentially rather than precisely, but such generalizations should be conscientiously justifiable.

Care should be observed not to make the same data serve too many purposes. *All* information will shed light on the examination as a whole. *Some* may apply to more than the immediate items under consideration. Yet each item must have its own justification whether independently of or included in the others. Since not all items are successive degrees of similar performances, care must be taken to score separately every item in respect to which there might be failure or success regardless of its position in the Scale as a whole. This is particularly noteworthy if special handicaps are present which might cause failure on lower items while not interfering with success on higher items.

The *"telescoping"* of items from one category to another tends to defeat the ultimate purpose of item specification. On the other hand, each item is only a specific moderation of a general aptitude. Hence there should be internal consistency among item performances, and therein the examiner finds confidence in the reliability of the evidence as a whole as well as in detail.

The *temporal* aspect of item evaluation is essential to this method of gauging social competence. Special care must therefore be observed to insure the habitual nature of the performance on each item. If there is doubt on this point, the examiner should satisfy himself as to when such item performance began, how long it has continued, how frequently or intermittently it is expressed, what is the degree of success, how much help, supervision or encouragement the S receives. Or, alternatively, has the S perhaps "graduated" to more important performances which either supplant the item or incorporate it? What are the environmental obstacles to successful performance, especially in case the S can or could perform if environmental opportunity or encouragement were afforded? Care must here be taken not to allow too generously for restrictions of environment, and the S must be neither penalized unduly nor too readily credited on items where he fails to dominate his environment in the absence of genuine prohibitions beyond his control.

This habitual feature of item success or failure will vary somewhat according to the nature of the item and the environmental circumstances or "occasions" which affect it. Conventional periodicity of performance must be reckoned with. Most people do not travel to distant points alone habitually in the sense of "all the time," but only when they have occasion to do so. Or one may not *invariably* spend one's money providently. Hence the usualness of performance is related to need, occasion or opportunity, and here again the examiner must exercise discreet judgment.

Information should be sought regarding items on which performance was formerly successful but has for various reasons been discontinued. These are scored "F" (formerly). "F" scoring should not be confused with "NO" (no opportunity) scoring, and both of these should be carefully distinguished from performance which has been lost due to deterioration or disability. "Has the S *ever* habitually done so?" "Why did he stop doing so?" "Do you think (assuming no disablement) he will do so again in other circumstances?" These are leading questions which will indicate the substantial worth of performances which have become suspended or discontinued.

Particular difficulty is encountered in the scoring of items when the environment either prohibits the subject from particular performances or does not afford necessity or encouragement for such performance. These are classed for scoring purposes as "NO" (no opportunity) items. Some of these situations might better be described as "no occasion" rather than "no opportunity," if the environment does not afford sufficient stimulus or need. On the other hand, *the S should not too loosely be absolved of exercising dominant initiative in these respects.* Hence, in scoring items as NO, special care should be taken to establish the factual basis for the opinions expressed by the informant regarding such performances. Such questions as "What makes you think so?" or "How long would it take him to learn?" or "Do you think he would do so continuously and without trouble?" or "Why doesn't he create his *own* opportunities?" will assist the examiner in evaluating the informant's opinion. Special care should also be taken to guarantee that the environment *really* affords no opportunity, *does* provide genuine restrictions, always bearing in mind that the Scale assumes that the mature and competent individual tends to find some way of surmounting or sidestepping the absence of opportunity if the urge and ability to perform are developmentally inherent.

Since the sympathy of the examiner is usually with the S, he is inclined to be over-generous toward him on the scoring of items in respect to which there are apparent environmental limitations. This is particularly true when the S does not perform an item within the immediate range of plus scores yet where a minus score seems to be out of place. The examiner should, therefore, make certain that in the use of +NO scores, the S really has no genuine bar to providing his own opportunity. If, for example, the environment appears to limit self-expression on the ground that "It isn't done," or "It is contrary to regulations," or because of parental prejudice, the examiner should make sure that the item is not in fact performed in spite of those restraints by at least some S's under substantially the same circumstances. Occasionally the informant may be unaware of some surreptitious performances, or ill informed as to what the S does as compared to what he thinks the S does. Similarly, in some institutional environments the S may reveal successful performance on items which are officially prohibited. The examiner should, therefore, avoid ingenuousness regarding the true situation. When the S is really capable, prohibitions may be waived, disapproval forgotten, supervision relaxed, exceptions granted. Or the performance may be clandestine, guileful, sporadic, subtly self-assertive, openly rebellious. Competence, like love, finds a way!

Use of "NI" (no information) scoring will be helpful if the informant is uninformed, inadequately informed, unwilling to inform, vacillating, insincere, or on NO items may be reluctant to venture an opinion. Such scoring serves to call attention to incomplete or unsatisfactory evidence for record purposes, and the number and location of such scores is a direct indication of the adequacy of the examination.

In the range between fully satisfactory plus scores and undoubtedly minus scores it may be difficult to assign unequivocal scores for all items. Some of these may be due to F, NO or NI evidence. Others will be genuinely borderline because: (a) the performance may be occasionally but not habitually successful; (b) the performance may be habitually but incompletely successful; (c) the performance may be embarrassed by environmental circumstances, uncertainty of evidence, or difficulty of interpreting the item definition; (d) the performance as reported on a given item may be out of harmony with reports on related items or with general expectation from the aura of the examination as a whole.

The very difficulty of such borderline scoring indicates the intermediate character of these performances. Such items may be developmentally emergent rather than maturely established. Or they may reflect incipient deterioration or environmental variability. As a practical way of resolving such scores the items concerned may be scored "±" (plus-minus). For standard practice such performances should be complete as to content but incomplete as to habitualness. It is extremely difficult to assign plus-minus scores to habitual but incomplete performance, since the variability of content is more elusive than that of customariness. However, it makes little practical difference, since any item which cannot readily be scored as plus or minus may thereby be judged as of intermediate degree of success, since it is only a question of whether the balance of doubt is toward success or toward failure. Assuming no constant tendency for the examiner to be characteristically lenient or severe, the errors due to balance of doubt will tend to cancel in the total result, but should frankly be regarded as borderline performances for purposes of detailed interpretation. If such scores are numerous, or widely scattered, they suggest vacillation of judgment on the part of the informant or the examiner.

To those unpracticed in the use of the Scale the specific scoring of items may appear equivocal. This is because attention may be focused on doubtful rather than assured performance. The examiner will quickly observe in actual examining that certain items are passed or failed without question, and that doubtful scoring is a problem only on doubtful performances, namely those which are intermediate, borderline or emergent. The very intermediacy of such performances limits their number (in a given examination) and reveals their borderlinity. The examiner then addresses himself conscientiously to these dubious performances and finds their definition somewhat unprecise for sharp delineation. This problem is readily resolved, and the examiner relieved of undue apprehension, ambivalence or skepticism if he will remind himself that the "easy" items (for a particular S) and also the "hard" items pose no such scoring difficulties. Hence the very doubt raised by the difficulty of precisely scoring a given item is *ipso facto* evidence of the item's borderlinity. The problem of doubtful scoring should therefore not be taken too seriously; it may instead be considered as additional evidence of marginal item competence.

Finally, it is necessary to warn the examiner again that the performances are not to be considered as test situations, but are to be viewed as established modes of behavior which reveal stable achievement. If the item permits being observed as a test situation, this may be used only as a check on the reliability of the informant. But the test situation merely reveals that the task *can* be done rather than that it usually *is* done under variable circumstances. We specifically desire here to measure *performance* rather than capability. Some of the performances may never be acquired in the life history of the individual because of specific mental or physical handicaps. Note also that specific performances may be lost through temporary or permanent mental or physical disability and especially in the deteriorated years of senescence, or in the physical results of accidents or disease. In all such cases each item should be scored in order to obtain a complete picture of the individual, even though the significance of such an item, when interpreted in the light of the accompanying circumstances, may have to be allowed for.

Scoring summary. We may now summarize overall scoring as follows:

(a) Score item plus (+) if it seems clear that the essentials for that item, as indicated by the item definitions, are satisfied and habitually performed without need of undue or artificial incentive, or with only occasional assistance in case of special circumstances.

Plus credit may be assumed for all items below that succession of pluses which provides the basal score for the Scale as a whole, assuming no limiting handicaps to expression. For such basal scores at least two consecutive pluses are desirable within each category appropriate to the range of the examination. The highest continuous plus score for all items is considered the basal score, allowance being made for lack of opportunity, as noted below. If the S is handicapped by significant mental, physical or social disability, all items likely to be influenced thereby should be scored factually rather than inferentially.

(b) If formerly successful performance has been outgrown or temporarily discontinued, the item is scored "+F" (formerly). For such scoring the recorder must be convinced that the performance could easily be re-established if desirable, or that the item is superseded by some obviously higher degree of similar behavior. Score +F also those items which the subject does not perform at the time of examination because of present temporary restraint or lack of opportunity, but which he formerly *did* perform *successfully* when no such restraints were imposed or when the opportunity was present. Plus-F scores are to receive full credit.

F-score credit is to be allowed where previously successful performance is interfered with by temporary ill health, by institutional commitment, or by other critical circumstances. Credit is not allowed for previously successful performance which has been lost as a result of senescence or relatively permanent mental or physical impairment. *Credit is not allowed where restrictions have proved advisable because of the unfavorable consequences already experienced in the absence of such restrictions.*

(c) Score "+NO" (no opportunity) those items which the subject has not previously performed and does not now perform because of environmental restraint or environmental lack of opportunity, such as parental solicitude, arbitrary adult domination, attendance at high school or college, institutional restrictions, or other grossly limiting circumstances, but which the subject presumably would perform habitually or could quickly learn to perform if such limitations to behavior were removed. *Such scores do not apply when performance is or has been limited by permanent physical or mental disability.*

Plus-NO scores receive full credit within the range of the otherwise continuous plus scores. They receive no credit within the range of the otherwise continuous minus scores. They receive half-credit within the intermediate range. If the +NO score is the last of the otherwise continuous plus scores, or immediately precedes the otherwise continuous minus scores, it is counted in the intermediate range and receives half-credit.

This system of crediting +NO scores is a compromise allowance for presumptive performance in the absence of reasonable opportunity for such performance in fact. It is frankly an expedient to avoid penalizing a subject whose performance on a given item is artificially restricted. Such scores will not affect the total score materially in most instances (except in some institutional environments). The effect that such scores may produce can be allowed for in interpreting the results in a given case or in a given group according to the limiting circumstances.

Care must be taken not to be ingenuous or too generous in estimating limitations of opportunity or to confuse such limitations with actual immaturity, inability or irresponsibility since the fundamental purpose of the Scale is to measure the extent to which the person progressively dominates his environment and creates, demands or justifies his own freedom of action as age increases. This is the principal evidence of maturing social competence and care must be taken not to discount it naively. Such items, therefore, should be viewed skeptically as well as sympathetically.

It is impracticable to provide alternate items in cases of limited opportunity, as this would require an alternate for each item and these alternates might be subject to the same difficulties as the items they are intended to replace. It also seems inadvisable to omit such items in a given case and provide an adjusted score on the basis of the number of items actually used. As a matter of fact, these items provide specially significant information for evaluating individual social competence.

For purposes of guidance, training or treatment, these items afford suggestions for increasing social maturity. It is important, however, that the recorder be free from prejudice in assuming that restraint or lack of opportunity is not *caused by* social irresponsibility of the person scored, as for example in relation to ordinary environmental dangers where the successful avoidance of ordinary hazards is itself the measure of social success. Care should be exercised also regarding the limitations to behavior imposed by generally accepted social conventions, especially such as vary with locality or the times.

Actual use of the Scale within a number of institutions for the mentally, socially and physically handicapped has demonstrated the practicability of the use of +NO scores in restricted environments, and suggests that alternate items or scales are not necessary for such groups.

(d) Score plus-minus (±) those items which are in transitional or emergent state, that is, which are occasionally but not ordinarily performed with full success. Such performances should be complete as to content (degree of success) but not yet fully established as to habitualness, rather than vice versa. These scores are to be given half-credit in the final summation for total score.

Borderline scores are to be expected in the borderline range. They will reflect: (a) timidity, indifference, low incentive, dependency, lack of self-assertion, and the like on the part of the subject; (b) solicitude, displeasure or domination on the part of parents or elders; (c) special hazards in the particular environment, and so on.

Subjects will be encountered who *can* perform (and sometimes do), or presumably could quickly learn to perform a given item, but who for various reasons generally do not do so, especially in cases where the subject enjoys a certain degree of sentimental dependence or assistance. In such instances the examiner must decide whether the item is to receive full credit as a genuine capability not always exercised, or whether the ability is only emergent. In the former case the item is to be scored full credit (see [e] below); in the latter case half-credit. Judgment is required to decide whether such assistance as may be given is *really* due to sentiment, solicitude, expediency, lack of occasion or need, or whether such assistance conceals a genuine lack of performance.

The use of ± is to be discouraged for merely doubtful performance. While such a practice has certain advantages, it tends to relieve the examiner of thorough work. Really doubtful scores which do not reflect emergent maturation should be scored frankly plus or frankly minus and the doubt regarding them indicated by prefixing "?" to the assigned score.

(e) Items which otherwise might be scored +NO but which represent "no occasion" rather than no opportunity as defined above, may be scored "+NOc" and treated as if +NO. This notation is for record purposes.

(f) Similarly, the notation "NI" (no information, or not-sufficient information) may be added to any score which must be assigned inferentially. Such NI scores indicate presumptive performance based on the aura of the examination as a whole for items which do not yield adequate scores due to lack of reliable data or due to equivocal or contradictory information.

These NI scores are necessary for record purposes. Their evaluation for item credit in summation remains somewhat arbitrary. Extended experience warrants the practice of allowing otherwise standard credit for NI scores as assigned inferentially. However, if more than five (5) NI scores are unavoidable within the range between continuously plus and continuously minus scores, then the examination as a whole is to be regarded as clinically unreliable and should be repeated with some other informant who is more intimately acquainted with the S.

(g) Score minus (—) those items in respect to which the person scored has not yet succeeded at all, or only rarely, or only under extreme pressure or unusual incentive. Such scores receive no credit. A complete record should show at least two consecutive minus scores in each category appropriate to the range of application.

Minus scores must be assigned for all failures in performance without regard to causes therefor (except as noted for F-scores, NO-scores and NI-scores). This scale seeks to measure social competence as expressed in fact or *ad hoc*. Hence no allowance may be made in the examination procedure itself for the reasons which underlie lack of social competence. Such allowance is, of course, essential to the *interpretation of results*. This interpretation is the ultimate purpose of the examination and would be defeated if mitigating circumstances are permitted to influence item scoring. The examiner must therefore conscientiously resist the temptation to make concessions for the effects of crippling, sensory defects, conduct disturbances, social maladjustment, mental disturbance, personality defects, immaturity itself, and the like; *the effect of these on social success is the point at issue.* These issues may properly be dealt with by the method of double-scoring (p. 292). The interpretation of these performances is to be related to independent estimates, measures or observations of the circumstances which may be influencing those performances. We return to this point in reporting trial studies of the Scale with handicapped individuals and groups (Chapters 11-14).

Score "—NO" those items respecting which special restraints or lack of opportunity may be noted, but which presumably would not or could not be performed even if the opportunity were provided. This scoring does not affect the final score, but serves to indicate that the disability is in the S and not due to some other cause.

Total scores. After at least two plus scores have been established at the beginning of each category, and two minus scores at the end, some attention may well be paid to terminating the examination neatly to the satisfaction of both examiner and informant. It is advisable not to close the examination too abruptly, but rather to return to the general friendly conversation with which it was begun, commending the informant for his cooperation and conscientiousness, as well as for the adequacy of the information, his interest in the S, and the material benefits gained from his assistance. Frequently in such a terminal chat, additional information of value may be brought forth. If both parties to the examination express their mutual satisfaction, good feeling is promoted as well as confidence in the returns. In situations where continuing examining is desired, this good feeling will spread among other informants and toward other examiners, and a progressive state of cooperation will be promoted. However, the examiner must exercise discretion in commenting upon the results of the examination and should not reveal the obtained scores unless specifically warranted.

In closing the examination a check on the obtained score is sought by asking for the informant's general estimate of the subject's age-level of social maturity in the light of the interview just completed. This "informant's estimate" is readily obtained without prejudice by asking the informant to express an opinion within outside limits (if he cannot express it more precisely) and then assuming the mid-point of those limits as a mid-estimate. Such judgments are to be expressed in terms of the average-normal person at progressive age-periods of social competence. This estimate should be requested at the close of the examination rather than earlier. If it is not in reasonable accord with the obtained SA score, then the examiner should proceed to harmonize the discrepancy, but without attempting to modify the informant's judgment except as this may have been improperly conceived.

The total score is the sum of scores as provided above. This is obtained by adding to the basal score (the highest of all the continuous plus scores) the additional scattered credits beyond the basal score, and expressing this sum as a total number of items passed (counting two half-credits as one item).

SA scores. This total (point) score is then converted to an SA (year) score from the conversion table (p. 290), or by interpolation from the record sheet. For this purpose the item numbers may be used to represent total point scores. The position in the year-scale of this item-number equivalent may then be reduced to an interpolated SA value.

Thus a total point score of 61 equals the "top" item-number of year V-VI, which would be SA 5.99, or 6.0. A total score of 62 would mean one-fourth of a year beyond SA 6.0, which is 6.25 or 6.3. A total score of 69 would mean four-fifths of a year beyond SA 7.0, which is 7.8. A total score of 83 would mean two-thirds of a year beyond SA 11.0, which is 11.67, or 11.7. If the SA interval represents more than one year, this would be calculated proportionately. Thus a total score of 88 represents four-fifths of the XII - XV year-interval, or 12.0 + (4/5 × 3), = 12.0 + 2.4, = 14.4.

The general rule for interpolation is therefore as follows:

(1) Subtract the obtained total score (as an item number) from the top (equivalent item number) of the year group preceding that in which the actual score is found;

(2) express this remainder as a fractional part of the year group in which the total score is found (based on the number of items in that group and the year-range of the group);

(3) add this value to the top year value of the lower limiting group.

EXAMPLE

Male, life age 14.9, Binet age age 7.2, Binet IQ 51.

Items:	55–59	60	61–63	64	65	66	67	68
Scores:	+	+NO	+	+NO	–	+	±	+
Credit:	59	1	3	.5	0	1	.5	1

Items:	69	70	71	72	73	74–76	77	78–86
Scores:	+F	±	+	+	–	–	+NO	–
Credit:	1	.5	0	1	0	0	0	0

Basal score 63, additional credits 5.5, total score 68.5.

Age-score (SA) = 7.0 + .7 = 7.7 years.

The total point-score (in this case 68.5) is converted to an age-score (SA = 7.7) as follows:

(1) On the record blank find the year-interval in which the total point-score (68.5) occurs (year VII-VIII).

(2) Note the item-number (65) which marks the end of the preceding year (VI-VII).

(3) Subtract this item-number (65) as a point-score from the total point-score (68.5).

(4) Divide this remainder (68.5 — 65 = 3.5) by the number of items (5) in the year-group (VII-VIII) in which the total point-score (68.5) occurs.

(5) Multiply this result (3.5 ÷ 5 = .7) by the year value of the interval (in this case 1 year) in which the total point-score (68.5) occurs.

(6) Add this result (.7 × 1 = .7) to the end value (6.99 or 7.0) of the lower limiting year (VI-VII).

(7) This result (7.0 + .7 = 7.7) is the interpolated SA-score corresponding to the total point-score (68.5).

The social quotient (SQ) is obtained by dividing the social age (SA) by the corresponding life age (LA) and multiplying by 100 (in this cas 7.7 ÷ 14.9 × 100 = 52).

TABLE A

Table For Converting Total Scores of Vineland Social Maturity Scale to Equivalent Social-Age Values*
(FORM B)

Score	SA	Score	SA	Score	SA	Score	SA	Score	SA	Score	SA
1.0	.06	20.0	1.18	39.0	2.5	57.0	5.2	75.0	9.3	93.0	17.0
1.5	.09	20.5	1.21	39.5	2.6	57.5	5.3	75.5	9.5	93.5	17.3
2.0	.12	21.0	1.24	40.0	2.6	58.0	5.4	76.0	9.7	94.0	17.5
2.5	.15	21.5	1.26	40.5	2.7	58.5	5.5	76.5	9.8	94.5	17.8
3.0	.18	22.0	1.30	41.0	2.7	59.0	5.6	77.0	10.0	95.0	18.0
3.5	.21	22.5	1.32	41.5	2.8	59.5	5.7	77.5	10.1	95.5	18.2
4.0	.24	23.0	1.35	42.0	2.8	60.0	5.8	78.0	10.3	96.0	18.3
4.5	.26	23.5	1.38	42.5	2.9	60.5	5.9	78.5	10.4	96.5	18.5
5.0	.30	24.0	1.41	43.0	2.9	61.0	6.0	79.0	10.5	97.0	18.7
5.5	.32	24.5	1.44	43.5	3.0	61.5	6.1	79.5	10.6	97.5	18.8
6.0	.35	25.0	1.47	44.0	3.0	62.0	6.3	80.0	10.8	98.0	19.0
6.5	.38	25.5	1.50	44.5	3.1	62.5	6.4	80.5	10.9	98.5	19.2
7.0	.41	26.0	1.53	45.0	3.2	63.0	6.5	81.0	11.0	99.0	19.3
7.5	.44	26.5	1.56	45.5	3.3	63.5	6.6	81.5	11.2	99.5	19.5
8.0	.47	27.0	1.59	46.0	3.3	64.0	6.8	82.0	11.3	100.0	19.7
8.5	.50	27.5	1.62	46.5	3.4	64.5	6.9	82.5	11.5	100.5	19.8
9.0	.53	28.0	1.65	47.0	3.5	65.0	7.0	83.0	11.7	101.0	20.0
9.5	.56	28.5	1.68	47.5	3.6	65.5	7.1	83.5	11.8	101.5	20.8
10.0	.59	29.0	1.71	48.0	3.7	66.0	7.2	84.0	12.0	102.0	21.0
10.5	.62	29.5	1.74	48.5	3.8	66.5	7.3	84.5	12.3		
11.0	.65	30.0	1.77	49.0	3.8	67.0	7.4	85.0	12.6	103.0	22.0
11.5	.68	30.5	1.79	49.5	3.9	67.5	7.5	85.5	12.9		
12.0	.71	31.0	1.83	50.0	4.0	68.0	7.6	86.0	13.2	104.0	23.0
12.5	.74	31.5	1.85	50.5	4.1	68.5	7.7	86.5	13.5		
13.0	.77	32.0	1.89	51.0	4.2	69.0	7.8	87.0	13.8	105.0	24.0
13.5	.79	32.5	1.91	51.5	4.3	69.5	7.9	87.5	14.1		
14.0	.83	33.0	1.94	52.0	4.3	70.0	8.0	88.0	14.4	106.0	25.0
14.5	.85	33.5	1.97	52.5	4.4	70.5	8.1	88.5	14.7		
15.0	.89	34.0	2.00	53.0	4.5	71.0	8.3	89.0	15.0	107.0	26.0
15.5	.91	34.5	2.05	53.5	4.6	71.5	8.4	89.5	15.3		
16.0	.94	35.0	2.1	54.0	4.7	72.0	8.5	90.0	15.5	108.0	27.0
16.5	.97	35.5	2.2	54.5	4.8	72.5	8.6	90.5	15.8		
17.0	1.00	36.0	2.2	55.0	4.8	73.0	8.8	91.0	16.0	109.0	28.0
17.5	1.02	36.5	2.3	55.5	4.9	73.5	8.9	91.5	16.3		
18.0	1.06	37.0	2.3	56.0	5.0	74.0	9.0	92.0	16.5	110.0	29.0
18.5	1.09	37.5	2.4	56.5	5.1	74.5	9.2	92.5	16.8		
19.0	1.12	38.0	2.4							110+	30+
19.5	1.15	38.5	2.5								

* Interpolated from record sheet.
SA's above 2.05 approximated to nearest first decimal.
SA's 21 and above approximated to nearest whole year.
SA's above 25 extrapolated approximately from adult range.

This exposition of interpolating SA scores from point scores makes the procedure look more complex than it is in fact. As a convenient alternative Table A affords a ready reference for obtaining SA equivalents from total point scores directly from the appropriate entries.

We advocate expressing age-values in years and decimals rather than in total months, years and months, or years and fractions. We also favor the practice of calculating life age values to nearest whole month, disregarding days. The errors thus introduced are slight except for very low ages and are merged with the probable error of measurement. Calculations may be approximated to the nearest first decimal for age values and to the nearest second figure for SQ's below 100. Some workers may prefer more exact arithmetic but such accuracy in calculation, while overlooking inaccuracies of measurement, yields only a nicety which is more apparent than real. For the reader's convenience the following approximation to decimal years is offered for corresponding calendar months.

Months	1	2	3	4	5	6	7	8	9	10	11	12
Decimal-year	.1	.2	.3	.3	.4	.5	.6	.7	.8	.8	.9	1.0

Special procedures. Various modifications of the standard examination may be employed for particular purposes. Among these are: (1) self-informing, (2) double-scoring, (3) retrospective examining, (4) use of multiple informants, (5) use of history data or literature, (6) description and counseling, and (7) informal use. Such departures should always be noted in reporting results.

These modified techniques are here briefly described and elsewhere alluded to (see index). Some of them have been investigated or employed in exploratory studies (Chapter 13). Although some of these devices yield scores which apparently are closely comparable to the scores obtained by standard examining, such results should be cautiously interpreted since normative data and correlative evidence on reliability, validity, and probable error of measurement have not yet been systematically established. Aside from the obtained SA's, information about the S may be obtained in these ways which may contribute to an understanding of the S not readily obtainable by the standard method.

1. In the *self-informing* examination the S is interviewed as his own informant instead of by means of a proxy. Logically this should be the standard type of examination, since presumably the S is better informed about himself than are his acquaintances or relatives. But self-informing has the disadvantage that the S may be reluctant to describe his own social behavior as candidly as this may be done by others. He might through modesty understate his habitual attainments or for various reasons misrepresent them. Or the intimate nature of the interview might prove personally embarrassing to the S, engendering reluctance because the interrogation might seem more improper to him than to someone else. Moreover, this procedure requires the presence of the S, whereas the standard examination makes this unnecessary. In short, the self-informing examination encounters both subjective and practical embarrassments. If resorted to, this method of examining is the same as that employed with other informants.

In general, S-examinations tend to yield somewhat higher scores, although some such scores are lower than those obtained from independent informants. This does not necessarily reflect the S's overestimation or disparagement of his abilities but may simply yield more recent and perhaps more detailed or more intimate evidence on his attainments.

The results from self-informing examinations have certain advantages in that they provide insight on the part of the S regarding his own competence as compared with the appraisal of others. Such scores likewise serve somewhat as indications of introversion or extroversion, or of tendences toward egotistic thinking vs. self-deprecation. Self-informing consequently may be used with therapeutic purpose or consequences because of the insightful self-evaluation of the S and the improved appreciation of personal-social abilities or desirabilities. This is comparable to the insight regarding the S gained in the standard examination by independent informants, for example, parents or parent-surrogates. Hence the method is helpful for mental hygiene purposes or in guidance and counseling.

2. *Double scoring.* The standard procedure for employing the Scale takes account of the individual as he is (or was) at the time of the examination. It makes no direct allowances for the influence of mental, physical or social handicaps on the success of the performances but attempts rather to score the performances *ad hoc.* It is obvious, however, that the *evaluation* of such results should not ignore the presumptive influences

of such specific handicaps as may obscure the innate capacities of the individual.

A fairly satisfactory procedure for appraising the effects of special handicaps is to employ "double scoring." By this is meant the scoring of item performances (a) as these are expressed *without* allowance for the handicap, and then (b) as they presumably might be performed if the handicap were not present. This second type of scoring should be accomplished as objectively as possible by careful interrogation on the same principles as are employed for assigning "no opportunity" scores. That is, the reasons for assigning the alternative score should be as valid as may be practicable. Indeed, in one sense the handicap poses the equivalent of the "no opportunity" situation, the handicap being considered as the bar to opportunity for expression.

These alternative scores will assist in the interpretation of the total examination as well as of particular item performances. The difference between the total score obtained by the method of standard scoring and the method of alternative scoring may be taken as a rough measure of the influence of the handicap on individual total social competence.

When such double scoring is employed, the influence of particular handicaps becomes more readily apparent and susceptible to more objective evaluation. This is helpful not only for clinical purposes but also in group studies where the influence of special handicaps is a central problem for comparative evaluation. This is somewhat analogous to the employment of alternative norms for restricted environments.

3. *Retrospective examining.* We have repeatedly suggested the practicability of using this scale as a very helpful means of reviewing the course of social maturation in a given subject. We have also suggested that this may be done in either of two ways: (a) by plotting total social scores at particular ages, or (b) by indicating the LA's at which particular items showed their earliest successful performance.

Retrospective total-score growth curves may be constructed by establishing scores at more or less continuous points in the previous history of the S. These scores need not be less precise than standard scores taken at successive ages over a succession of years. Many S's will be clearly recalled by particular informants, or even by the same informant, at earlier ages than the subject's present age. Hence although the S may be no longer living, or not of intimate recent acquaintance, the informant may have vivid recollections of the S as of a desired former date. Indeed some informants may have their *best* knowledge of the S as of dates prior to the time of actual examination. In other instances retrospective scores may be somewhat less thoroughly established as between certain limits of precision. In general, retrospective examining is possible with a surprising degree of success. The procedure has several variations as follows:

(a) The usual procedure for retrospective examinations is the same as that employed for standard examinations. The informant is asked to recall the S as of a certain date in his life history. The accuracy and vividness of recollection is best insured by directing the preliminary interrogation toward the general status of the S as of the time in question. This is facilitated by encouraging the recollection of specific events of some dramatic moment in the life of the S at that time such as school entrance, entrance to or graduation from high school or college, marriage, or other significant events bearing on the S which will serve to "date" him in the mind of the informant. With this specific orientation toward the S as of that date, the examination proceeds in the usual manner for standard examining. The scores thus obtained may be considered as developmental scores in the life history of the S, and may be used as measurement points in the developmental history.

Such retrospective examinations may be conducted when the S is deceased or has not been known to the informant since the last date of intimate acquaintance. Retrospective data may therefore be obtained from the same or different informants on the same S at different life ages. Retrospective examinations may also employ the S as his own informant if his memory is assuredly accurate. These procedures supply retroactive growth curves, or evidence of social maturity at critical periods which may be of exceptional scientific, professional, or even legal value.

(b) As noted earlier, another method of retrospective examining is to record the particular ages at which specific items of the Scale first became habitually successful. In this procedure the progressive maturation of the S is developed in terms of item scores rather than in terms of total scores. Employing the standard method of interrogation, item definition and scoring, the examiner inquires as to the earliest date (or age) at which habitual performance on given items was clearly attained. This is analogous to the usual questions of developmental history such as when was the first smile noted, when did he hold up his head, sit up, stand alone, walk, run, jump; but the interrogation is more precise, the standards of achievement more clearly defined, and the factual details more systematically elicited.

On the early items of the Scale these "first dates" may be established with reasonable accuracy to the approximate month of attainment. Or the beginning and end of the emergent period of attainment may be revealed, in which case the date of successful emergence is assigned as the critical point. In the later items of the Scale as age advances it may be impracticable to assign fixed dates, but approximate dates may be given within limits, such as between 4-5 years, or at about 15 years, or somewhere between 20-25 years. In general the safest practice is to assign the mid-point of such limiting dates as the most probable time of achievement. The same technique may be employed for senescent retrogression or for mental deterioration and recovery.

It is apparent that this method of examining does not yield the same precise results as in standard examining, nor does it yield satisfactory total scores. The Scale does, however, afford item definitions and norms for obtaining developmental history data significantly beyond the techniques and content of examining now generally practiced. Even if all the items of the Social Scale are not employed in this way, some of them may be used as milestones in the developmental or involutional history and used as specific points of reference.

This method is particularly helpful when one desires to relate morbid events in the life history to degrees of competence concomitantly obtaining, e.g., as in correlating suspected causes of mental retardation with date of onset from a possibly former normal state. The technique is specially useful in some legal circumstances for determining the consequences of accidents vs. previous status. This possibility of "timing" states of competence has many assets.

(c) The Scale may be used in either of the above ways for the evaluation of social maturation on the basis of material already of record, as in summarizing case-history records. From such records, assuming adequacy of data, it is practicable to establish total scores at various points in the life history of the S or to establish the dates of item attainment. These methods are applicable to data inherent in biographies, novels, drama, epic poetry, social-history records and similar sources.

In such circumstances the examiner is obliged to rely upon the material available, and this will adventitiously determine the life-age points at which the recorded data are interpretable. However, in the field of biographical research it may be possible for the investigator to determine the particular points at which he most desires developmental data and proceed accordingly. Obviously in the utilization of such data, the examiner may not be able to escape the necessity of pooling information from varied sources rather than utilizing single informants. He may also have to infer presumptive item success from correlated information outside the details of item scoring. Consequently, the use of recorded evidence is less precise and calls for more resourcefulness than is the case in standard examining. However, the examiner has recourse to the definitional elaboration of item performance and the normal age standards of item success.

These several uses of retrospective examining, like standard examining, assume adequacy of information. It is therefore incumbent upon the examiner to insure reasonable scope and reliability for the evidence elicited. Insofar as the examination may be considered incomplete or even invalid, the evidence may at least be set forth explicitly within the limits indicated.

4. *Multiple informants.* It is sometimes impracticable to employ a single informant as required by the standard method. It may be difficult to obtain a sufficiently informed or cooperative informant (p. 269, 286). Or the examiner may be constrained to conduct the examination with a third person present who may contradict or supplement the "official" informant (as when both parents, or the informant and the S, are present). Or each of several informants may be inadequately informed regarding different categories of items, and may disagree or complement each other. The skilled examiner is usually able to reconcile inconsistent evidence by reducing the informants' expressions of opinion to their factual bases. One way of doing this is to clarify the habitual (temporal) aspect of the performances or the particular situations or occasions which affect them. The examiner should resist the temptation to introduce information of his own as gained from observations, records, hearsay, or personal acquaintance with the S.

In such circumstances it is inadvisable to "pool" information from multiple informants or other sources for a single examination. It is better practice to conduct independent examinations for each informant, or other source of information, and evaluate these separately either as incomplete records (p. 557) or, if complete, in terms of the probable error of measurement. It is, however, sometimes necessary or advisable to pool information from multiple sources for purposes of a single overall appraisal.

5. *History and literature.* History data and literary material (p. 458, 571) are sources of information from which approximate SA's may be systematically estimated. Sufficient evidence may often be culled from casework records, personnel files, biographies and autobiographies, histories and historical novels, fiction, drama, poetry and similar means to serve as "quasi-interviews with proxy informants." Such "examinations" will usually be unavoidably sketchy and the item scores largely inferential. Yet the over-all analysis afforded by this procedure yields results which appear to be within rather definite limits of plausibility for definitive appraisal.

6. *Description and counseling.* The standard examination may be modified in purpose rather than procedure in order to gain a complete description of the S or for indirect counseling. This involves different emphasis in respect to which item scoring and ultimate SA are less important than intimate understanding of the S. While these results inhere in all clinical uses of the Scale they may be specifically at issue. Hence the *implications* of the item details assume importance beyond the mere routine of assigning item scores. Indeed, in such circumstances precise item scoring may be both more difficult and less relevant than is typically the case. These descriptive and implicational values are particularly helpful with handicapped or maladjusted S's.

Two illustrations may be cited.

1. A classroom demonstration of the Scale was being given before a group of graduate students in speech and hearing impairment. The S (not present) was a 2.7-year-old girl with congenital cerebral palsy, mother informant, the child's physical therapy nurse present as class auditor. Exploratory interview revealed the S to be grossly impaired in speech and movement but apparently of better-than-average intelligence and personality. Standard examining encountered many difficulties of scoring due to physical handicaps associated with superior mental aptitudes, which yielded partial or emergent performances and consequently equivocal item scores. The examination was then "pointed up" by intensified interview to reveal the minute details and variable circumstances of the child's performances with special regard for a "no opportunity" halo resulting from physical dependency and environmental solicitude.

In the course of the examination the mother gained insight regarding the child's physical limitations in relation to the child's mental assets and the social regimentation. Forced item-scoring yielded an SA of 1.0 years, and inferential double-scoring an SA of 3.2 years. Both these scores were considered approximate rather than precise. The description of the child was here much more significant than the formal scores. Likewise, both mother and physical therapist perceived suggestions for management and therapy, and concurred in similar direct suggestions from the examiner. Moreover, the record stands as a point of reference for future improvement due to maturation and treatment as well as an indirect estimate of intellectual aptitude not susceptible to direct standard measurement in view of the receptive and expressive physical handicaps.

2. A classroom demonstration of the Scale was being given before a group of advanced students in special education. The S was a self-informing boy of 19, a high school junior, with relative reading disability, reported IQ 95. As the examination progressed, it was evident that the S was increasingly embarrassed by his own candid responses which revealed numerous shortcomings of performance. It was obvious that he was accepting indirect suggestion from the content and spirit of the interview as well as requesting and accepting direct suggestions of the order of informal counseling. The obtained SA of 18 years was less significant for all concerned than was the personality description and apparently spontaneous insight gained from the examination. Even the reading disability loomed less important than his social attitudes.

Subsequent to this examination the following unsolicited letter was received from this S.

"I've been doing a lot of thinking since we had that talk together in front of all those teachers. To me it didn't seem to be a test of some kind but a talk between two persons who just met. It started me thinking if I'm the boy my parents want me to be. I never did give much thought to those questions before you and I had the talk. I just want you to know that I'm doing a little changing at a time. I'm trying to do the things I am expected to do and a little more and I feel better about everything. Thanks a lot and I hope I get to meet you again. You don't know what this help means to me. I enjoyed every minute of it because you treated me so good."

7. *Informal use.* Apart from these methods of direct examination, the Scale may be used informally by inexperienced examiners, or by interested informants, or the S himself, independently of systematic interview. This loose procedure affords a useful though crude appraisal of the S in situations or by persons where standard examinations are impracticable. In such use of the Scale the items may be scored on the basis of yes-or-no expression of opinion unsupported by detailed interrogation, as a rough method of orientational evaluation of the S. The record blank may even be placed in the hands of the informant or of the S himself and the items merely scored plus or minus on the basis of the implications of the caption formulation of items without definitional elaboration of performance. A special case of such use of the Scale is the employment of the Scale by correspondence, either with or without the use of definitional scoring. Obviously the results obtained from such procedures are not to be taken very seriously for scientific purposes, but may be all that is desired or may serve where other methods are impracticable.

8

Illustrative Examinations

The strength of a man is according to his age. —Judges VIII-21

The examining procedures, and some specific uses of this scale, have been set forth rather explicitly in manual form in preceding chapters. These instructions become more realistic when amplified by illustrative examples. The following detailed accounts of actual examinations are designed to elaborate both theme and nuance of procedure for various types of subjects, stages of maturity and purposes of inquiry.

CASE I. *Normal preschool child, male.* LA 2.1, SA 2.4, SQ 114.

The examiner establishes rapport through general conversation in which the nature and purpose of the examination are briefly explained. In this case the S is being examined for purposes of normative standardization of the Scale. The mother is a cooperative and willing informant. The child is of American descent; father is a farm supervisor; father's education high school graduate and university short courses; mother's occupation housewife; mother's education high school. The child has no limiting handicaps. The examiner notes the somewhat better than average social status of the family as well as the parental education and paternal occupation, and gauges his questions accordingly. These notes on the general family status and environment are readily gained from initial conversation showing a thoughtful interest in the child and the family.

The reader will note the use of interspersed general conversation designed to maintain the informant's interest and cooperation and to facilitate the volunteering of gratuitous information, and the attempt to avoid the cross-examination type of interview. This includes occasional conversational digressions during the interrogation not immediately relevant to the particular items of the Scale, but designed to ease the transition from one item to another, or from one category to another. The examiner "feels his way" toward effective questioning by interspersing somewhat irrelevant remarks as far as the Scale is concerned in order to keep the examination on a conversational plane. The examiner specifically avoids stilted questions and unqualified "yes" or "no" answers. His problem is to refrain from scoring the items until he has elicited sufficiently detailed information to warrant clean-cut scores.

Knowing that the child is two years old, and assuming normal development for that age in view of the preliminary conjectures, the examiner (in this case) begins with the locomotion category as follows:

E. (Examiner) I suppose Carl (the S) walks about rather freely?

I. (Informant) Oh yes, he goes everywhere by himself now.

E. Do you have to watch him very much as he gets around?

I. No, I can trust him most of the time and he seldom causes me any trouble.

E. How long do you leave him alone to look after himself, and where does he go without need of your watching him?

I. Of course he goes all around the house during the day, and he plays out in the yard when the weather is good.

E. Are you worried about his safety or getting into trouble when he does this?

I. Of course I like to know where he is and I keep an eye on him, or I look from time to time to see what he is doing. But he is very good about not being meddlesome and when he is in the yard he doesn't wander off the place. I feel that I can trust him, but from time to time I go to see what he is doing. Generally I can leave him to himself for half an hour at a time.

E. When he does this, is he by himself or in the company of other children?

I. Both. Sometimes he plays by himself. Other times he is with the other children. He likes to be with others, but doesn't cause them any annoyance. But of course he likes a certain amount of attention.

E. Does he go up and down stairs by himself?

I. Yes, he goes up and down the porch steps without trouble and goes up and down stairs alone, but when he is upstairs I feel a little more concerned about him because he doesn't go downstairs very easily by himself.

E. Does he need any help going up and down stairs?

I. He walks upstairs all right holding to the banister, but coming downstairs he is rather timid and doesn't manage so well. Yes, he puts both feet on each step as he goes up.

E. Does he walk downstairs?

I. No, he goes downstairs backwards on his hands and knees.

E. Does he play by himself outside the yard?

I. Oh no, I wouldn't feel safe about that. He understands that he isn't to go beyond the sidewalk or outside our own property.

This completes the locomotion series (for this S). Items 12, 18, 29, and 32 are scored plus, while items 45 and 53 are scored minus. Items 61 and above are obviously inapplicable.

E. I suppose he does a good many things for himself now?

I. Oh yes, I don't have to give him much attention in ordinary matters.

E. (Shifting to the general self-help category.) Does he still use a baby carriage when he goes out?

I. No, we put it away a few months ago. I take him for short walks either holding his hand or having him walk beside me. When we go any distance we use the car. If I am out shopping he manages very nicely without being carried.

E. Does he help himself in little ways, or do you have to look after him?

I. Well, around the house he manages very well. I'm afraid I don't understand quite what you mean.

E. I mean, do you have to open the door for him when he wants to go out, or pick up his things for him, or watch him frequently in regard to ordinary dangers such as playing with matches or teasing the cat, or breaking things?

I. Oh I see! No, he looks after himself quite well. If the door is closed he can get on a chair to turn the knob and can then open the door unless it should stick. He climbs up on things to get what he wants and he doesn't worry me about the things he's not supposed to touch. He carries his playthings around in a little wagon. We don't have a cat, but he plays with the neighbor's dog without any fear, keeps out of the street, and is generally quite careful. In fact if anything, he is over-cautious and even a little bit afraid in some ways. Around the house he uses a kindergarten scissors to make paper cut-outs and he uses a knife without hurting himself. He doesn't like strangers and won't have anything to do with them.

E. Do you take him to the toilet, or does he go by himself?

I. Most of the time he lets me know when he wants to go to the toilet, but now and then when he waits too long I ask him, to avoid accidents.

E. He doesn't go to the toilet by himself then?

I. Oh no, I have to help him.

E. Does he still wear a napkin?

I. No, not for some time.

E. Does he sometimes wet himself?

I. No, not during the daytime, and he does wear a napkin at night, but I can give that up now because he really no longer needs to.

In this category Items 2, 3, 5, 6, 8, 9, 13, and 15 are scored plus on the basis of information already obtained. Items 23 and 41 are scored plus, Item 26 plus, Item 35 plus-minus as an emergent item (being successfully performed much of the time but not habitually). Item 51 is scored minus. Item 66 is obviously inapplicable.

E. (Taking up self-help eating.) I suppose you've stopped nursing him?

I. Yes, about a year ago. And he has given up his bottle too.

E. What does he do for himself at the table?

I. Well, he uses a fork now and insists on having it for eating vegetables because he likes to eat like his older brother.

E. Does he have any difficulty using a fork for eating meat, or does he spill very much food?

I. He doesn't have meat very often, and of course I cut it for him in small pieces and he has no trouble using a fork that way. Of course, he does spill a little bit and he is kind of awkward, and sometimes when he's in a hurry or tired he uses a spoon instead of a fork, but most of the time he has no trouble.

E. How long has he been using a fork successfully?

I. Well, there was quite a time when he wanted to use it, but he made such a mess that I had to take it away from him, but for the last six weeks or so he has been getting along very nicely.

E. Does he also use a knife at the table?

I. No, that is, not very well. He is pretty independent and wants to spread his own bread, but this is too much for him, and anyway I'd rather do it for him because otherwise I have to watch him all the time.

E. He doesn't use a knife very well then?

I. No, I'm afraid not. Do you think he should? Sometimes he tries to cut with a knife and then there's trouble.

E. Do you have difficulty keeping him from eating things that might be harmful?

I. No, he's pretty careful about that. In fact, we think he's pretty fussy. He spits out things that he doesn't like, and if he sometimes puts something in his mouth that isn't good to eat, he gets rid of it pretty quickly.

E. Does he use good judgment in eating things that have peelings on them?

I. Well, I think he could do that, but he hasn't had much chance because I'd rather do that for him. Lately he has begun to peel a banana when he has one, but sometimes I even have to help him with that. If we have salt water taffy, I have to take the paper off for him because I'm not sure that he would take it all off and I'm afraid he might eat some of it. Sometimes the other children give him peanuts, but I have to watch to see that he takes the shells off, and really it's easier to do this for him.

E. Is he careful about chewing his food?

I. Yes, he has been taught to eat slowly and to chew his food before swallowing, and unless he is in a hurry to get away from the table we don't have any trouble about that. As I said before, he's careful about eating and although he still wears a bib at meal time, he can use the same one for several meals before changing it. At first I used to have to wash his face after each meal, but now all I have to do is to wipe his mouth when the meal is over.

E. Does he use a glass all right at the table?

I. Yes, and also a cup. In fact, he can get a drink for himself away from the table and has been doing this for a couple of months. When he wants a drink he gets a glass from the shelf by climbing on a chair and goes to the kitchen faucet. In fact, if he asks me for a drink, I generally tell him that he's old enough to get a drink by himself now.

In this category Items 11, 16, 20, 25, 28, 30, 38, and 39 are all scored plus. Item 38 is slightly dubious, but may be scored full plus rather than plus-minus. Items 33, 62, and 67 are scored minus and Item 75 is therefore automatically minus.

E. How about dressing himself? How much can he do for himself or what *does* he do for himself in that way?

I. Well, I'm afraid he isn't so good about that, or maybe I don't give him much chance. You know how a mother hates to have her boy grow up too fast! I like to do things for him, and anyway, with the other children I haven't the time to let him do these things for himself. It's so much easier to do it for him.

E. Does he help at all in dressing himself, or even in undressing?

I. Well, he's always wanting to take off his own shoes and stockings when he goes to bed or when I change his clothes, but I usually do this for him, and he doesn't have much chance. I'm afraid I spoil him a little bit that way.

E. He doesn't take off his outer clothes either?

I. No, I have to take off all his clothes for him, but I think he could do more if I'd let him, and of course he doesn't put on any of his clothes although he's always wanting to.

E. You do everything for him then?

I. Yes, you know how it is with a mother!

E. How about washing himself?

I. Well, he tries to wash his hands every now and then, but he makes a pretty bad job of it and gets the towel so dirty when he dries them that I find it much easier to do this myself.

E. He doesn't really even dry his own hands then?

I. No, he just dabs at them and I have to finish the job.

E. He doesn't wash his face either?

I. No, I'm afraid that would be expecting too much. He doesn't even like it when I wash his face for him.

The items in this category are all minus. Items 21, 37, 40, 42, 47, 50, 52, are specifically failed, and the succeeding items are under the circumstances inapplicable or automatically minus. Note that this category shows special retardation in maturity and that the mother apologizes for the child's inadequacy on the basis of her own convenience or solicitude.

E. (Considering the occupation category.) You told me a while back that Carl uses the scissors when playing in the house. Can you tell me some of the other things he does in his play, or in keeping himself occupied?

I. Well, he has always been an active boy and is always doing something. We always thought he was a little bit ahead of other children and quite able to help himself in these ways

E. Tell me some of the things he does.

I. Well, he likes to use colored crayons and even tries to draw with them. He tells us what the drawings are, but mostly they're just marks. Then he carries things around the house, and for a half hour or so at a time will put his toys in all kinds of imaginary arrangements. He plays with blocks, pushes his wagon around, and looks after himself very well without being told what to do. He likes to work with the scissors cutting paper. He can follow a line fairly well in making cut-outs but doesn't make very good patterns. Sometimes I let him have my sewing scissors and an old piece of cloth when I am with him.

E. Does he help around the house in little ways?

I. Well, I can ask him to go get things for me or put things away and he is very good about this if I don't ask for too much. In fact, he likes to help me and has been doing this for some time.

E. Does he do anything more than this?

I. Well, now and then he helps to put things on the table, but I have to tell him what to do, and he doesn't stay at it very long. He's all right as long as I tell him one thing at a time. Of course I can't rely on him for anything very important or that requires much persistence.

E. Does he play with a wagon or things like that?

I. He pulls a wagon around the yard and he uses a kiddy-car in the house, but I don't trust him that way outside the yard or off the sidewalk in front of the house. I'd be afraid to let him go very far because he might hurt himself.

E. Does he use tools at all?

I. Besides the scissors he uses my kitchen spoons and pans, but just to play with. Of course he isn't old enough to use a hammer or tools like that.

In this category Items 7, 19, 22, 24, 36 and 43 are scored plus. Items

48, 55, 57, and 71 are scored minus. The other items in this category are either automatically minus or not applicable.

E. I gather from what you've told me that Carl has no difficulty in talking?

I. Well, he does pretty well, but we think he's a little slow that way. Maybe we're expecting too much because his older brother did so much better than he at the same age.

E. Does he understand pretty well what you say to him?

I. Oh yes, he understands everything I say. As I told you, I can send him to get things for me or to put things away, and I have told you how he helps me if I tell him what to do.

E. Does he understand pretty well what you say to him?

I. He says a lot of words and can name the things he wants, but he doesn't talk very distinctly and other people don't understand him very well. It isn't so much that he can't talk, but he doesn't talk very clearly.

E. Does he talk connectedly? I mean, does he tell you very much about what he wants or what happens to him?

I. Well, not very well. He uses a few sentences but not very many and not very often, like "See dog." or "Want my ball." His sentences very seldom have a subject. Still we understand most of the time what he is trying to say. Of course, he doesn't talk very connectedly or say very much that we can understand except for these little sentences. When he tries to tell us anything he has to be prompted or very much encouraged. We think he would talk more if we could understand him better.

E. Does he do any writing?

I. No. He just makes marks with a pencil.

Communication items 1, 10, 17, 31 are scored plus. Item 34 is scored plus-minus as an emergent performance, but this is a little generous. Items 44, 58 and above in the communication category are scored minus or are inapplicable.

Skipping the self-direction items as inapplicable the examiner proceeds to the socialization category.

E. You told me that Carl plays with other children. What do they do?

I. Well, he gets along very nicely with other children. Of course they are older than he is and so he plays mostly by himself, even if the other children are around.

E. What games does he play with the other children?

I. Well, he doesn't really play games with them very much. He plays more by himself. He likes to watch the other children and they play pretend games. Sometimes he plays "ring-around-the-rosy" or "hide-and-seek" and I notice lately that he does this much more often than he used to.

E. Does he try to entertain the other children or does he "perform" when you have visitors?

I. No, he's pretty shy and there isn't very much he can do that way, although he's quite active in his own play.

Items 4, 14 and 27 are scored plus. Item 46 is scored plus-minus. Items 49 and above are minus or inapplicable.

The examination is terminated with complimentary comments on Carl's growth and behavior and expressions of appreciation for the mother's cooperation.

In summary, all items are plus in the first year. Items 21 and 33 are minus, and Item 34 plus-minus, in the second year. In the third year Items 36, 38, 39, 41, 43 are plus, 35 plus-minus, and the others minus. In the fourth year (year III-IV) Item 46 is plus-minus, and the other items are minus. Totaling these scores, all items are plus to Item 20 inclusive, which is therefore the basal score. There are 16 full pluses and 3 half-credits in addition to the first 20 items, or 17.5 additional points which, added to the basal score of 20, yield a total score of 37.5. Converting this total score to an SA score by the method described on page 289, we observe that 34 points equals 2.0, and that the remaining 3.5 points expressed as a fraction of the 10 points included in year II-III equals .35 years, which added to 2.0 equals 2.35 or 2.4. Or the SA may be obtained directly from the conversion table (Table A, p. 290). SA 2.4 divided by LA 2.1 yields SQ 114.

The statistical significance of this result in terms of deviation from the mean is most readily calculated for the SQ. Reference to Table 5 (p. 376) shows that the mean SQ for LA 2-3 is 112, SD 17. This S is therefore 2 points, or .12 SD, above the mean for his age. (Other methods of calculating position scores are considered in Chapter 9). For additional interpretation we may note that this S comes from a somewhat superior family for social status and is without noteworthy handicap. In the absence of psychometric data and personality evaluation (other than apparent from the Social Scale itself) further speculation is not warranted. Item evaluation shows relative retardation in the self-help dressing category. Otherwise the S's performances are well-rounded.

In this examination we note immediately the facility with which the examination proceeds. We are dealing here with an informant who readily comprehends the questions and volunteers helpful information. She is eager to tell of the child's successes and her very apologies for his lack of performance are ingenuously informing.

CASE II. *Superior adult male.* LA 65, SA 30+, SQ 120+.

We have elsewhere noted the difficulties of formulating the adult items and that in designing the upper reaches of the Scale we were guided by analyzing the social performances of a number of acknowledgedly superior adults. Dr. J. is one of these. He is the director of a well-known institution for the care of mentally subnormal children and has devoted his life to the promotion of public welfare. His present age is 65 years, and the examination is made as of that age. While there has been some abatement in recent years as to the vigor of his activities, there has been no reduction in the level of his social performances, and from the point of view of the Scale he may still be considered as at his prime social competence. In his case, adult prime was reached certainly before 40 and probably before 35 years of age.

This period of prime attainment could readily be established through retrospective examining. It is relevant to note that the period of optimum attainment for superior talent is reached at LA 30-40, with the mean at about 33-35 years.* By that age the promise of productive prime is well assured for the average of superior adults. This does not of course mean *all* such adults but only half of them (the mean approximating the mid-point of the distribution). In some instances optimum work is done after LA 50 or, with decreasing incidence, as late as LA 80.

We might generalize the principle that the major impetus to productive effort is well set before LA 40 and that productivity continues on the momentum from this impetus, but with negative acceleration. This deceleration is ordinarily not noticeable before LA 50 but is usually apparent by LA 60. Thereafter the decline in imaginative effort becomes increasingly obvious with progressive loss of vision, venturesomeness and vigor.

The relatively new science of gerontology, and its applications in geriatrics and gerontotherapy, has already assembled a large body of systematic material and is earnestly engaged in varied aspects of further research.

The informant in this case is a personal friend and professional associate, intimately acquainted with the S for a period of 20 years and closely contacted with his activities. In orienting the examination, the examiner learns that the S is of Canadian birth, English descent, whose life since childhood has been spent in the United States. His scholastic education included three years' study of medicine, but the extent of his education is by no means limited to formal instruction. On the contrary, his self-education has continued throughout his life and his scholastic and intellectual attainments might well be envied by the best of scholars. Most of his life has been spent in the field of institutional administration; since 30 years of age he has been the superintendent, and later the director, of an

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*Cf. Harvey C. Lehman. "Intellectual" versus "physical" peak performance: the age factor. *Scientific Monthly,* 61. July, 1945 pp. 127-137.

institution which has attained international recognition. The examiner approaches the examination with this information which is readily elaborated as the examination proceeds.

E. You've known "Prof." J. for some time, and are pretty well acquainted with him, are you not?

I. Yes, I've known him in various capacities for over 20 years and have been closely associated with him. Indeed, he has been one of my "heroes" and I have observed his achievements and his manner of work in the hope that I might profit from these observations myself.

E. (Beginning naturally with the occupation category.) Well, what is the nature of his work?

I. His immediate position is that of director of a semi-private institution for the care of mentally subnormal children with an inmate population of about five hundred. But this position, important as it is, serves only as a base of operations, for he is actively engaged in many fields of humanitarian, scientific and business interests.

E. Do you consider him a man of recognized professional attainment?

I. Oh, unquestionably! In fact, he is known internationally for the exceptionally high standard of his work. He is an outstanding leader in his field, twice president of the national association representing that field. He is the author of books and articles, not only in this field but in related subjects. He is a man of unusual versatility and wide interests.

E. You say he is the managing director of a fairly large institution?

I. Yes, and has been so successfully for 35 years.

E. How large is the staff of this institution for which he is responsible?

I. The employed personnel exceeds 175 persons.

E. And he organizes and directs the work of this group?

I. Yes, and he is well known for the originality and system with which he does his work. He is specially keen in the development and application of the principles and methods of scientific management. As the executive head of the institution he is responsible for safeguarding the financial income and budget of that institution.

E. And would you say that he is himself responsible for increasing the success of the institution by his own effort, or that this has been somewhat the result of favorable circumstances?

I. Dr. J. is a man of extraordinary initiative and resourcefulness and it is largely due to his creative efforts that his School has grown from a relatively small and little known place to its present size and its present international reputation. He has been a dominant factor in these developments, and has attained them against serious odds. His readiness to depart from accepted practice is one of his outstanding characteristics.

E. And is he completely absorbed in his work, or does he take time out to play now and then, and if so, what does he do?

I. In spite of his wide responsibilities and interests, he manages to find time for profitable recreation. He reads a great deal in subjects outside his immediate field. He is fond of outdoors, especially fishing, travels a good deal both for pleasure and profit, has an immense capacity for enjoying his experiences, and has no time at all for idling except as this is itself recreational. He holds a longstanding membership in an out-of-state hunting and fishing club and pursues numerous intellectual hobbies as well. At present his special interest runs to archaeology and he has collected quite a number of relics of this sort.

Items 106, 107, 108, 111, 113, 114, and 116 are obviously plus, since

the items are all more than satisfied by the S's performances.

E. (Checking the self-direction items.) In his capacity as managing director, I suppose he has large responsibilities for the welfare of others?

I. Obviously. Aside from his personal family responsibilities (he has four children) and those of the institution, he voluntarily gives much help to many individual friends and employees and shows concern for their welfare.

E. And I suppose his position carries some financial responsibility?

I. Yes, he approves all major purchases of the institution and is its responsible financial head. This work involves not only ordinary purchases, but also the large construction projects which he initiates and ultimately approves. Of course, he also approves the payroll of the institution. These expenditures run to six figures.

E. And would you say that he manages his own financial affairs as well as those of the institution?

I. Well, as to that, I am not so well informed, but I know he pays his bills and lives rather prudently, where most persons might well be extravagant.

E. And what is he doing to meet the rainy days?

I. I understand that he carries extensive life insurance and has important investments which are carefully safeguarded. Also I believe he has provided well for his family. While he has had some financial business losses, his principal resources are well invested. Incidentally he is one of our bank directors and vice-president of the Board.

Items 100, 101, 102, 105 and 112 are obviously plus, and more than satisfied.

E. (Introducing the socialization category.) You have said that Dr. J. has made important contributions to social welfare. What are some of these contributions?

I. Well, there is hardly any local movement for social betterment in which he doesn't have some large share. He is active in the support of good government, church work, the local schools, the local Grange, YMCA, Boy Scouts; in fact there is hardly anything that goes on locally in which he doesn't have some large and disinterested share.

E. Does this extend outside his local contacts?

I. Yes, he not only supports, but actually stimulates, movements for civic betterment, and has done so for many years. His professional activities are far-flung. While not personally ambitious, he does not hesitate to take an active share in these movements.

E. Can you be a little more specific?

I. Well, for many years he has been a recognized leader in his own community. He recently received a public award as our most outstanding local citizen. He is consulted on practically all matters of local public concern, as for example, in the appointments of important officials, in the selection of candidates for public positions. As I said before, he is a member of the Board of Directors of our local bank. He has been a Mason for many years, belongs to numerous professional and scientific national organizations and has had a wide influence in both state and national public welfare movements. At the close of World War I he participated in the morale work in the Army and had an active part in the child welfare program in Serbia for which he was decorated by Crown Prince Alexander.

E. And would you say that some of these activities have risen above immediate necessities? By that I mean, how far has this influence been felt? What universal recognition has it had? What implications for a better world tomorrow?

I. Well, he is listed in *Who's Who*, and as I have said, has been twice president of a major national association, has held numerous important appointments of professional or consulting nature in his state and in national relations. He was awarded an honorary degree at Princeton and another at Rutgers. He has been cited on several occasions for his contributions to the improvement of agriculture, education, public welfare administration. He is well-known for his vigorous promotion of scientific research. You can see it's a long list, but if you want more detail . . . . .

Items 103, 104, 109, 110, 115 and 117 are obviously plus, and more than completely satisfied.

From this information it is clear that, difficult as the adult items may seem to be from the point of view of performance, definition, and scoring, their application is relatively simple when the S is obviously capable. There is no question that every item of the Scale is generously satisfied by this S whose social competence reaches beyond the limits of the Scale and leaves much to be measured that the Scale does not provide for. Note that three categories of the Scale, self-help, locomotion, and communication, were omitted from the examination as being entirely comprehended in the other categories by implication or in fact by reason of the level of attainment in the three categories employed and in the absence of special handicaps.

The total score in this case is 117. This score is beyond the highest score obtained in the normative standardization sample (112 points) and represents the Scale's maximum limit of measurement. The extrapolated SA is 30+ years (maximum SA score) and the corresponding SQ is 120+ (maximum assignable adult SQ).

CASE III. *Constitutionally inferior institutionalized adult girl.* LA 26, SA 14.1, SQ 56.

The preceding examinations illustrate the procedure with normal subjects at both ends of the Scale. We now consider the intermediate range with variously handicapped subjects and for different types of examining and scoring.

The present S reveals serious social deficiency combined with psychometrically average intelligence without noteworthy handicaps other than the developmental retardation in social maturation. The examination illustrates environmental limitation and facilitation in development and the use of "F" and "NO" scores. The case history reveals the stability of the total scores obtained over a period of ten years by different examiners employing various informants. These standard scores are compared with retrospective scores based on recorded information from the life history at various dates. The categorical analysis of item performances indicates relative proficiency and deficiency in different phases of social competence. The examination is illuminated by a preliminary overall clinical summary of the life history and some comment on the problem of differential diagnosis. This S has been permanently institutionalized on a life provision plan in a residential school for the mentally deficient and has so spent the past seventeen of her thirty-five years (illustrative examination as of LA 26).

We are immediately confronted with the difficult problem of mental diagnosis and the discrepancies between clinical impression and objective measurement. This difficulty is increased by the uncertainties of both subjective and objective criteria for determining the upper limits of mental deficiency vs. constitutional inferiority (constitutional inadequacy, constitutional defectiveness).

The systematic diagnosis of mental deficiency requires evidence of six definitional criteria, namely (1) social incompetence, due to (2) intellectual deficiency, (3) existing from birth or an early age, (4) which obtains at maturity, (5) is essentially incurable, and (6) is of constitutional origin. In short, mental deficiency is defined as a social insufficiency ascribable to developmental retardation in the field of intelligence due to native lack or permanent modification of normal constitutional potential prior to maturity.

Constitutional inferiority resembles mental deficiency in its major indications as a developmental inadequacy, but relates the constitutional basis to unresolved organic and personality factors other than intelligence. The condition is essentially one of inadequate personality rather than inadequate intelligence. Yet the personality factors are by no means clear. The major implications of the personality deviation are conative weakness, limited insight and judgment in spite of fair "intelligence," conduct disorders, and particularly deficiency in social achievement or adjustment. The skillful use of projective techniques materially clarifies the diagnostic distinction.

These observations are relevant to the present case study as illustrating the comparative merits of the Social Scale vs. psychometric measures when taken in relation to the total individuality of the S under consideration.

Natalie was born in New England, of English descent, but grew up in a city of moderate size in the South. Her mother was twenty-five years old at the birth of the child; her father was twenty-nine. The family is of superior financial and social-economic status, the father an accountant and builder.

Natalie was the first-born of three daughters. The two sisters are living and reported as entirely normal. The birth history as reported was uneventful, but the details are somewhat meager. There are no indications of prenatal complications and the description of the birth reports nothing unusual in the birth process. However, there is a statement of injury to the skull at birth, the nature and cause of which could not at this time be elicited. She was born at full term with normal labor.

Early developmental history indicates delay in walking (at 2 years) and talking (at "less than 3 years"). These events suggest the likelihood of early neurological damage, probably of paranatal intracranial origin. This probability is increased by the absence of unfavorable family history and the absence of serious illness antedating the onset of developmental retardation. The medical history available is negative except for certain childhood diseases without noteworthy consequences. The history relates "glandular fever" at 6 years, and severe pneumonia at about 17 years of age. These later illnesses, however, postdate the onset of retardation.

Developmental retardation was noted from early infancy. She was delayed in motor development and was "different from other children." Following the onset of speech she had difficulty in pronouncing words and seemed otherwise backward in development. (Given adequate informants this developmental retardation could be more clearly described and more accurately dated by retrospective Social Scale examining.)

She attended a small "porch school" and was assisted by a tutor at home. She entered public school in the fourth grade at about ten years of age and was promoted regularly year by year with favorable aptitude for scholastic work. She graduated from grammar school and entered a high school academy. But at this time it was noticed that she had reached the limit of her scholastic attainment. She was removed from school because of illness and subsequently was placed in a private school for mentally exceptional pupils. After three months at this school she left because of illness, and the following year was placed in another school for mentally deficient children and adults where she has spent her subsequent years in continuous residence except for brief visits at her home.

In spite of various signs of retarded development, Natalie's disposition and educational progress were generally favorable. However, she is described as always being a misfit with children and as showing "lack of social orientation." She tended to mingle with her social inferiors and with younger children and showed generally poor social judgment. There was a tendency toward sexual preoccupation and untrustworthiness. These sexual tendencies were the immediate social cause for institutional placement plus the desire for continued training in social adaptation.

At the time of entering high school she lived with her maternal uncle and his five children in order to extend and improve her social relations. It was in this situation that her social irresponsibility became conspicuous and that it became evident she had reached her limit of academic achievement. During the intervening years between high school and institutional placement the sexual tendencies caused grave concern, but so far as the record shows did not eventuate in sexual promiscuity. She did however become rather difficult to manage because of her social aggressiveness and somewhat obtrusive personality coupled with an unwarrantedly high opinion of her abilities. Because of verbal superiority she attained relatively exceptional though somewhat shallow scholastic success. At 17 years of age she showed excellent command of language and a fairly wide range of general information. However, insight was limited, judgment poor, and behavior socially imprudent.

At the time of admission to the institution where she now resides, Natalie received extensive psychological study and this has been continued over the intervening years. Binet mental age (1916 Stanford-Binet) at this time (LA 18.5 years) was 12.9 years, IQ 91 (14-year basis), which placed her at the lower quartile of the normative standardization for this test. Various other tests of literacy, educational achievement and literate intelligence (Ohio Literacy, Stanford, Pressey X-O) exceeded this result with scores at median or above performance. A standard test of non-verbal abstract intelligence (Myers) likewise yielded a score above the normative median. This was confirmed by performance test (Witmer) score. Low scores were obtained on the Porteus Maze (9.5 years), and on the Healy PC #2 (9.0 years). Social competence at this time could not be measured for lack of suitable measuring devices other than rating scales and descriptive score cards. But the history indicated social inadequacy coupled with amenable social adjustment under supervision.

In general these favorable scores have been sustained by repeated examinations (including Morgan, Alpha, Monroe, Otis, Goodenough) in the subsequent years. Successive Binet scores hovered about 13 years (12.7 to 13.3 years) with literate-verbal scores and non-verbal abstract scores at average adult level (Porteus score advanced to 12.5 years). Educational attainment has been reasonably well sustained but without much practical capitalization.

These test results, coupled with clinical observations revealed excellent verbal memory, superficial reasoning ability, limited insight, poor judgment, fairly good range of general information. Her social behavior has been characterized by obtrusive personality and imprudent conduct but amenable disposition. These observations are best confirmed by the Porteus Maze test.

Since 1935 Natalie has been repeatedly examined with the Vineland Social Maturity Scale. These results have centered about SA 14 years (13.5 - 15.3) with a maximum score of 16.0 years on self-informing administration.

The extended clinical study of this girl over a period of LA 18 to LA 35 years, coupled with evidence from institutional experience and adjustment, reveals a consistent picture of serious subnormality in social competence associated with substantially average intelligence as measured by standard psychometric tests. The clinical observations and the history reveal no evidence of mental deterioration or disorder, and no complicating handicaps aside from the social incompetence itself. The only limiting circumstance is the specific supervision required with reference to sexual proclivities, but these were not seriously unusual or abnormal. The later history does reveal a succession of somatic complaints, such as difficult menstruation which ultimately yielded to radium treatment, physical discomfort which yielded to appendectomy, mild behavioral instability which improved following dental extractions, and some apparently gonadal involvement which has subsided with advancing years.

In view of the favorable degree and quality of intelligence a diagnosis of mental deficiency seems unwarranted. But in view of the social inadequacy and apparently permanent arrest in social development at the adolescent level the most tenable diagnosis is one of constitutional inferiority. The specific reasons for this inferiority are not clearly elicited, but the social inadequacy itself is clearly established in fact both by the history of social achievement and the direct measurement of social competence by the Social Maturity Scale.

There is no clear etiology for Natalie's condition other than that of possible intracranial birth lesion. This presumption is increased by motor awkwardness (generalized incoordination) evident from physical education instruction, occupational experience and clinical observation. These inferences are supported by recent tests of motor facility (Heath railwalking, e.g.). In more recent terminology she would be described as the organically impaired crystallized type with language facility and limited concept formation, or Heath's Y-3 type.* The psychometric data may reflect a somewhat spurious measurement of intelligence since the test scores are above the level of practical function, an observation which is common to the Y-3 type.

In undertaking the direct examination, the examiner has access to the above case history information but may prefer to conduct the examination unprejudiced by this knowledge. In the latter case the examiner would find it necessary as a preliminary to the examination to orient himself in respect to some of the above information which presumably would be at the informant's command.

In either case the examiner notes that the S has been a resident pupil of a training school for mentally deficient children and adults since late adolescence (LA 18 years). He observes that she has had excellent opportunity at home, a favorable public school education including first-year high school, optimum institutional care (including cottage, school and occupational training), intermittent home visits, corrective medical attention, and favorable personality stimulation. These training opportunities have included a wide variety of specific pursuits such as physical education, dramatic instruction, handwork, domestic arts and science, music. Nevertheless she has not succeeded socially at any point in her life without embarrassment to her family or without careful supervision. And she is still incapable of self-support, self-management, and self-direction without serious apprehension regarding the hazards involved with reference to her ability to live prudently or to become economically independent. There is at present little reason to suppose that if she were returned to her family or to some other social scene that she would be able to succeed

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*Cf. S. Roy Heath, Jr. A mental pattern found in motor deviates. *Journal of Abnormal and Social Psychology*, 41, April, 1946, pp. 223-225.

independently of continuous supervision and assistance. Hence the examiner is on guard in this case not to be misled by the evidence from psychometric measurement revealing average level of intelligence. The examiner is also on guard in employing the Scale for use of "F" scores in the home environment and "NO" scores at the institution.

The examination here presented was conducted at LA 26 years (i.e. nine years prior to the latest records in this history) through the attendant at the cottage where Natalie resides at the institution. This attendant had been in close contact with Natalie for a number of years and was fairly well acquainted with the family and the home to which Natalie returns for occasional visits and vacations. Since Natalie is both loquacious and well informed, the attendant knew a good deal of Natalie's background from conversations with her, especially following her return from home visits. The student will note that in spite of the above history the examination is based entirely on the information obtained from this cottage attendant as informant, and that even the "F" scores and the "NO" scores are based on this informant's evidence. The student will also notice that Natalie has been examined on a self-informing basis, that she might be examined by using her parents as informants, that information of record might be resorted to (retrospective biographical procedure) but that it is inadvisable to pool these various sources of information in a single examination. Each such examination should rather be conducted independently. The results of several such examinations might be compared but should not be pooled for a single score.

Disregarding the above summary, the examiner interviews the cottage attendant as follows:

E. You've known Natalie for some time and are well acquainted with her?

I. Yes, she has been in this cottage under my supervision for the past three years, and in this capacity I am reasonably familiar with her life in the institution. I have also met her parents and of course Natalie talks to me a great deal about her life at home.

E. (Feeling his way.) Do you know what led up to her coming to this institution?

I. I understand she has been here for 8 years, and before that she spent four months at a private school in Pennsylvania. Her parents have told me that although she got along all right at school she was always a rather peculiar girl. It seems that she was pretty fond of the boys, and that she didn't show very good judgment in what she did at home. Her parents felt that she was not responsible, didn't get along well with girls of her own age, had to be watched continually, and all together it was too much responsibility for them. Her mother told me that her interest in boys and men was the final straw, but that in many other ways Natalie could not be trusted to look after herself.

E These sexual inclinations, then, were not the only reason for her commitment?

I. Oh no, this was only the immediate reason. As I have seen Natalie I can understand how impossible it would be to have her at home unless she was continually looked after.

E. (Moving into self-direction category.) I understand that here at the institution where we are responsible for looking after her, she is kept under fairly close supervision?

I. Yes, of course. Like all the other girls we have to know where they are all the time. Otherwise she might run off or get into trouble with any man she might meet and we would be held responsible.

E. I suppose this means that she is not left to look after herself for very long at a time, or to go out alone during the day, or to go out at night without someone being with her?

I. Yes, of course. She is able to look after herself as far as keeping occupied is concerned, but I wouldn't want to trust her alone very long because she really is so irresponsible. She doesn't stay at things or do them well when left to herself very long, and she might even "handle" some of the other girls or teach them bad habits, although I haven't seen much of this of late. And of course she isn't permitted to go out either during the day or night unless some responsible woman employee is with her.

E. Do you think she could do any of these things if it were not for the rules of the institution; I mean, would you be willing to trust her to go out nights by herself or during the daytime, or would you be willing to leave her alone or to look after other children, either boys or girls younger than herself for any length of time?

I. Well, I wouldn't want to be responsible for her if she went out nights or during the daytime, for I am quite sure she would be likely to get into trouble. I think she could find her way around familiar places, but she's pretty heedless and impulsive and, no, I wouldn't feel comfortable about it. As I told you, I wouldn't even feel very good about leaving her alone for longer than half-an-hour by herself unless I knew where she was and what she was doing. Even then I would want to check up on her from time to time. I certainly wouldn't be willing to leave her with younger boys, and wouldn't feel very safe even with younger girls.

E. Do you know whether she did these things at home?

I. Well, her parents have told me that they never felt really safe to leave Natalie at home alone because they didn't know who might come to the house or what she might do. They say she was always rather flighty and even after she grew up they didn't feel comfortable about her being alone. I know the neighbors never left the children with her. However, she did for a time go to church alone and go downtown on errands, but she took such unreasonably long time about these things that after a while the family never allowed her to go out alone during the daytime, and certainly not at night!

E. (Taking up locomotion items because of their immediate relation to these aspects of self-direction.) Does she go to town from the institution by herself, or is she allowed to go anywhere by herself off the grounds?

I. No, she never goes off the grounds unless she is attended by some woman employee. In fact, she isn't even permitted to go about the grounds except from this cottage to the next, unaccompanied.

E. Did she do any of these things at home?

I. Natalie tells me that when she was at home attending high school she went to school by herself, but usually other pupils went with her. For a while she went to church alone as I told you, and now and then went to town on errands by herself, but finally she wasn't permitted to do this because the parents were always worried about her while she was away.

E. When she visits at home now, does she go alone?

I. No. When she goes from here to her home for visits, either some relative comes for her, or if that is impossible, she goes by train in charge of the conductor. We see her safely into the Pullman car at Philadelphia and the conductor is carefully instructed to look after her until she reaches her home where she is always met by some relative when the train comes in. Her parents don't feel any too good about this, and so they almost always come and get her and bring her back.

E. (Returning to the self-direction items.) You said she isn't really responsible for her own affairs?

I. No. She shows very poor judgment in what she does, is quite impulsive, and has very little idea of the consequences of what she does. She is a well-behaved girl, but of course here she is under supervision most of the time and I feel that she certainly could not be trusted to look after herself.

E. How about the use of money? Does she have any spending money, and what does she do with it?

I. Of course you know that in the institution the children do not have any money. Natalie's parents send her two dollars a month for spending money and this is put in Store for her. She doesn't have direct control of this and I don't believe she would use it very wisely if she did. I am sure she would spend it foolishly if she had opportunity to do so.

E. Did she have a spending allowance when she was at home?

I. She says that her mother used to give her fifty cents a week for spending money when she was in high school, and that she spent this for candy and sodas and other trifles, but not for anything serious.

E. Doesn't she buy anything for herself with her allowance, or didn't she when she was at home?

I. She buys little things at Store here, like writing paper, or something that one of the children has made that is for sale, and she buys her own toilet articles, and at Christmas time or Easter she buys gifts for friends and relatives. Her parents send her clothing to her, so that she doesn't need to buy much of that sort.

E. How about when she's at home?

I. Her mother gives her money to buy some articles of clothing such as a few underthings or stockings, or things that she wears. Most of the time her mother is with her when she selects these things. She can be trusted with money, but never is actually given very much at a time. You know she is very generous and likes to give things away and buy things for people. Her mother had to tell the store people at home not to let her buy things on the family charge account.

E. Does she select her own dresses or coats or the more important kinds of clothing?

I. Natalie has very nice clothes and I have often spoken to her mother about how well dressed she is and how much she likes nice things. Her mother said that Natalie likes nice things but is rather "flashy" and a little childish in her taste when she picks out things for herself. So, while she humors Natalie in buying little things and consults her about her more important clothes, she (the mother) actually decides what to get after getting Natalie to see it her way. (That sounds a little mixed up, doesn't it? Does that answer your question all right?)

E. Yes, I see. But you said she does buy some things?

I. Yes, when she is home she is given small bits of money for this and that and most of the time, but not always, she uses this money as she is expected to.

E. To what extent does Natalie look after her own health?

I. Well, here in the institution we keep a fairly close check of that and send the children to the hospital in case of anything serious. She lets me know when there is something the matter with her or when she doesn't feel well, but I don't think she uses very good judgment, of course I keep an eye on her like all the other girls. When she is at home her parents take her to their own dentist to have her teeth looked after, and also have their family doctor give her a general examination. And she had a pretty hard time each month and needed looking after, but not so much lately.

E. Do you think she could do these things for herself if this were made her responsibility?

I. Well, I think she would in a way, but not very successfully. She has some idea about avoiding colds and she knows enough to keep away from the other children if they have some infection, but I notice that if I don't keep after her she's pretty careless about herself in these matters.

This group of self-direction items is particularly difficult to administer to institutionalized subjects, since performances are limited by the very mental deficiency which makes institutional care desirable and in respect to which environmental safeguards are necessary or advisable. However, in this case we have background information as to what the S does at home when on visits and what she did formerly at home before institutional placement at 17 years of age. We also have the opinion of a well-informed attendant of good judgment as to what the S might be capable of doing if she were in a home environment.

As for scoring the items, we have the following data: Items 60, 76 and 87 are scored plus-minus (as being sometimes successfully but not habitually successfully performed); Items 83, 93, 94, 95, 97, 99, 100 and 101 are minus, and the other items in the self-direction category are automatically minus or inapplicable. The locomotion items given coincidentally with the self-direction items are scored as follows: Item 53 is "+F." Item 61 "— NO," and Items 77, 92 and 96 are minus.

These scores are rendered difficult in this case because of the wide-spread areas of performance over which the S is only partially successful both at home and at the institution. It is rather likely that if the S were given complete freedom, some of the items might reach a full plus and others a full minus performance. The somewhat dubious nature of the scoring is illuminating, however, as revealing the incapabilities of the S and as indicating the less clear-cut nature of performance among constitutionally inferior and mentally deficient subjects as compared with normal subjects. This results from the fact that such S's can do so many things within guarded limits, but weakness of judgment operates as a special handicap which limits complete success on items that are otherwise (or apparently) within the limits of capability. The feeble-minded or constitutionally inferior S therefore shows a wider range of scores on the Scale because of the dependence of performance on judgment and responsibility and the rather weak capitalization of experience. It is also obvious that such S's would be most handicapped on those items involving self-direction, since it is the inability to manage their own affairs which constitutes their most conspicuous deficiency. Hence the examiner must be specially on guard for use of *can* instead of *does* and should be careful to check the basis of opinion of "+NO" scores. Lack of opportunity must not be construed independently of the real reasons therefor.

E. (Taking up socialization category.) You have said that Natalie gets along with the other children well and with employees except for her irresponsibility. What does she do for recreation?

I. Although Natalie feels herself rather superior to the older and brighter girls in the group, she is fond of the younger children and really associates more with them than with the older girls who feel that she is rather childish in spite of her general ability.

E. What kind of recreation does she prefer?

I. Well, she's always talking about tennis, but she doesn't play the game very much. She understands it and can keep score and keeps up an interest in such news about tennis as she can get hold of. She likes to go swimming and walking and does so whenever she has a chance. She enjoys playing card games and can even play a fair though rather simple game of bridge. Most of the girls don't play these games, but Natalie sometimes fills in when we (staff members) are playing a game.

E. Does she play a good game of bridge? Does she keep score?

I. I would say that she understands the rules and plays a rather simple game. She likes to keep score and usually does so when she plays with us. You know she is very quick at arithmetic and prides herself on understanding and following the rules of the game. However, she doesn't really play a very good game and often makes quite foolish plays.

E. What other things does she do?

I. Well, when she's out playing with the little girls she joins in games of tag, turns the rope for them, plays hop-skotch, or in the house she entertains the younger girls with dominos or games like parchesi. Of course she does these things much better than the little girls do, and plays with them more like I would, giving them a chance to win and apparently enjoying her superiority. She also likes to play grandmother when the smaller girls are playing house, and often she pretends she is the attendant when the children "take us off." She is quite a tomboy, too, and likes the more active games, but of course does not have much opportunity here for playing them. If she had a chance she would much prefer to play vigorous boys' games because they are so much more active.

E. You say she doesn't join the older girls in their activities?

I. Yes, she does. But she isn't so very popular with them. She is a member of the girls' Triangle Club, and is a leader in that group on the more difficult things. You see Natalie is very bright, but she doesn't have much judgment and the other girls don't like her to dominate them. She very much enjoys going to camp with her group and is always planning "big" things for them to do. Even more she likes to be with the employees and is constantly hinting to them that she would like to be taken places.

E. You said she is not very responsible herself. Does she assume any responsibility for others?

I. She looks after the younger girls quite a good deal, and likes to "mother" them, but she does this like an older sister would, rather than like an adult. And, of course, she doesn't carry any continuous responsibility, but does this more on special occasions.

E. With this fondness for children, does she still believe in Santa Claus?

I. Oh dear no! She's much too bright for that, but she does encourage the younger children and likes to tell them fairy stories and to pretend as they do.

In this category, the scores are consistently plus for items 56, 59, 68, 69, 85 and 88, and minus for 103 and beyond. In this category Natalie's relatively high intelligence and activity give her an advantage in directions where her type of irresponsibility and poor judgment do not put a premium on successful performance. Nevertheless, there will be noted an undercurrent of lack of adult maturity revealing both her performances and her attitude as of the early period of adolescence.

E. (Considering the occupational items.) What kind of work does Natalie do? Is she helpful and can she be relied upon for any important work?

I. She is a very helpful girl and does a great deal. She is large and strong and active and enjoys having things to do. She is also quick and makes herself useful. The only trouble I find is she overdoes it and is rather forward about it, and this sometimes gets annoying. Also I can't rely on her for thoroughness.

E. Does she have any special routine of work?

I. Yes, she has her daily "jobs" such as helping to dress the children, assisting the children in making their beds, waiting tables in the staff dining room, and things like that. She has a room by herself and takes care of it. I seldom have to speak to her about the condition of her room.

E. Has she ever had a job with wages?

I. No, her parents are well-to-do, and have kept her at school. She doesn't really do much school work any more, although she still attends classes, and never did finish the first year of high school. The kind of work she does best is simple housework.

E. Do you think she could get a job and hold it either at housework or in a factory?

I. I think she might be able to obtain a position because she is rather plausible until you get to know her, but I doubt if she could hold it.

E. What makes you think so?

I. Well, she is too flighty and irresponsible. She requires a lot of follow-up and then, you know, she is rather forward, and as I have said before, she doesn't have very good judgment. In the staff dining room she is officious and is always "listening in" or "kibitzing."

E. Does she make things for herself?

I. She has had domestic science work and sewing and although she no longer goes to these classes, she likes to do this kind of work either for herself or about the house.

E. Just what does she do of this kind?

I. She does good sewing and mending, helps in the care of the other children, prepares vegetables in the kitchen, takes care of some plants in her room, tries her hand at cooking but isn't very successful. Oh yes, and she writes a great many romantic stories.

The scores for this category may be assumed as plus in the earlier

items. Items 72, 80, 82, 89 are also plus. Item 98 is minus and the higher items in the category are also minus.

E. (Transferring to the communication category.) You say she writes stories and I judge from what you already said that she likes to read?

I. Yes, this is her long suit. And in her own way she is quite capable. She reads a great deal in magazines and such newspapers as she may have. Her people send her quite a few books and she even borrows some of mine.

E. What does she like to read?

I. She reads nearly anything she can get hold of. She is specially fond of romantic novels and likes the more lurid magazine stories if she can get them. She also enjoys the Geographic Magazine and likes to read about travel and adventure.

E. Does she read any serious books?

I. Not very many, and not very often, and not very much. When I talk to her about this reading she doesn't seem to have gained very much from it except some rather glib information.

E. Would you say that she reads with profit?

I. Yes, to the extent that she keeps me informed on the general news and especially the sensational news. She keeps pretty well informed about athletics and knows who's who in the major sports. She has a general interest in fashions, but this is rather girlish. Also she gets the news over the radio and it is surprising how much she can tell you about what's going on in the world!

E. Does she do much writing?

I. I'll say she does! She is always writing to friends and relatives whether they answer or not. She tells them all about what's going on here, tells her folks what she needs or wants, and keeps them so well informed that when they visit her there isn't much left to talk about.

E. Does she have any occasion to write business letters?

I. She is bothering me all the time about sending for catalogs and answering the radio offers of samples and things. Then, too, she likes to order things from catalogs. I usually help her in her selections, but she does all the correspondence.

E. Does she use the telephone?

I. Not here, except to answer the house phone when it rings, but when she's at home she keeps the family on edge by calling up all her friends.

E. In doing this, does she call only familiar numbers?

I. No, she uses the telephone book and even likes to place long distance calls for her father when she has occasion to use the phone at home.

The items in this category tap the special scholastic aptitude of this S and are plus for all items, i.e., 73, 78, 79, 81, 84, 90 and 91.

E. (Considering self-help items.) May I take it for granted that she looks after herself pretty well?

I. Well, I'm not sure I understand what you mean.

E. Does she require any help at the table?

I. Not any whatever. She looks after herself entirely.

E. What does this include?

I. Everything. She gets no help whatever, cuts her own meat, prepares her own food, she has nice table manners, and helps the other girls at the table who may need assistance.

E. And as to the care of her person?

I. She takes entire care of herself.

E. What do you mean by that?

I. Well, just that.

E. Does this include bathing herself and entirely dressing herself?

I. Yes, she takes her own bath without any assistance whatever and exercises entire responsibility for her clothes.

E. I thought this wasn't permitted (under institution rules).

I. Well, officially it isn't, but Natalie is so unquestionably able to take her own bath and so much likes to be independent that I let her do it. She isn't likely to scald herself or run the tub over or leave it dirty. And it's the same with her clothes. She selects her own clothes, and as I told you she has nice clothes and she knows what to wear for the proper occasion.

E. Does she get any help at all?

I. No, she cares for herself entirely, looks after her own nails, washes and dries her own hair, curls her own hair (and would go to the barber or beauty shop if she could). In fact, I never have to look after her in those respects. Indeed, she helps me a great deal with the other children.

E. Can she tell time?

I. Oh yes. To the fraction of a minute. She even wants to own a stop watch!

We have considered the three self-help categories together here and find all items plus without question.

We are now in a position to total Natalie's scores. The items are all plus to Item 75, inclusive, except for plus-minus on Item 60 and minus NO on Items 53 and 61. These three low items reflect Natalie's special disability in the direction of social irresponsibility. However, Items 53 and 61 may be scored plus F even though it seems rather likely that she receives more or less supervision at home even when she is going about the neighborhood or when she goes on relatively nearby errands (the equivalent of going to school unattended). The examiner's decision is to allow the plus F score on these two items because of their position and because the amount of supervision that Natalie now receives, or appears to need, on these items is not greater than that which would normally be exercised for children 4 or 5 years of age. Item 60, however, is allowed only half credit. The remaining items are as follows: 76, plus-minus; 77, minus; 78 to 82, plus; 83, minus; 84 to 86, plus; 87, plus-minus; 88 to 91, plus; 92 to 103 (and beyond), minus. This gives a basal score of 74.5 with 12 additional full scores and 2 additional half scores, or a total of 13 additional points. This gives a total score of 87.5 points, which by interpolation (or from the conversion table) gives a total SA of 14.1. Natalie's LA at the time of this examination is 26.1 years, but since 25 years is the average adult (ceiling) performance, this latter age is used for purposes of calculating quotients where the life age is above 25 years. The SQ is therefore 14.1 divided by 25, or SQ = 56. Reference to Table 5 (p. 376) shows that the mean SQ for LA 25+ is approximately 100, SD 10.

The position score for SQ 56 is, therefore, — 4.4 SD.

In interpreting this score, we recall that SQ's below 70 when not seriously affected by special handicaps are a suggestive (but not conclusive) indication of possible mental deficiency. Natalie's SQ of 56 is well within feeble-minded limits and the SA of 14.1 is well below the upper SA limit of mental deficiency (which we have elsewhere indicated may be taken at SA 18 years for LA 25 plus). The SA is also one year above the MA which is consistent with other data for mental defectives. The examination as a whole further confirms the suspicion of mental deficiency on qualitative grounds. However, the relatively high MA and scholastic achievement, even though affected by superficial verbal aptitude, are not consistent with a rigorous diagnosis of mental deficiency, but suggest instead the alternative of constitutional inferiority. This alternative is not altogether satisfying since constitutional inferiority as a diagnostic syndrome is not very clearly defined and is in the realm of neuropsychiatric practice. This problem of mental age at the upper limit of mental deficiency coupled with social sufficiency below the lower limit of normality has not yet been solved.

CASE IV. *Deteriorated (formerly superior) adult woman.* LA 84, SA 1.1, SQ 4.

This examination is presented to show the use of the Scale for the measurement of (a) social deterioration, and (b) the ability of the S at her prime. The examination illustrates the practicability of measuring the social consequences of dementia in the late period of senescence and also of determining the former level of competence. This is a rather extreme case and is not to be considered as typical of ordinary senescence.

Mrs. C. is now 84 years of age, American-born, of superior social-economic and cultural status. She has been a woman of exceptional attainment, brilliant intellect, and forceful personality. Her father was a teacher in the days when this occupation was less common than at present. Mrs. C's several children also are of superior competence. She herself is now an invalid showing signs of extreme mental deterioration and physical inactivity. She maintained a superior level of social competence up to age 65-70. At about that age there was a natural decline in the vigor of her activities, but no signs of deterioration were observed until she was past 70. During the next 10 years there was increasing inactivity, but the present serious invalidism has come about principally within the last two years.

Mrs. C. is cared for by her daughter who manages a small private school for subnormal children. The informant is a granddaughter who has assisted in her care and is intimately familiar with her present disabilities, as well as with her former attainments. Under the circumstances the examination requires special tact and sympathy in view of the natural concern which the informant has for the S. In the course of the examination the informant is candid and helpful and is intelligently interested both in the conduct and the implications of the examination, being herself a college graduate and professionally as well as personally interested in the examination.

E. I understand that your grandmother was an exceptional woman in her prime. Does she manage her own affairs at all now, such as going out by herself, or handling her own money, or making her own purchases?

I. No, that is quite beyond her present ability. We have to look after her completely and do everything for her. It is several years now since she has been able to look after her own affairs or do any shopping.

This immediately eliminates all self-direction items.

E. Does she get about by herself, or is she taken about?

I. At present she goes nowhere at all except as we take her. She used to travel quite a good deal, then she stopped going out of town. After a while she no longer even went into town or around the neighborhood. At the present time she doesn't even go outside the house except as we take her. In fact, at the present time, she is as dependent as an infant.

E. You mean she doesn't even go about the yard by herself?

I. Not only that, she doesn't even walk about the room. She is unable to go either upstairs or downstairs by herself. In fact, she is practically bedridden. We think she is able to get around the room by herself, but actually she doesn't. She falls very easily when she tries to walk, and so she either sits in the chair or sits or lies in bed practically all the time. If she gets about at all, it is only as we take her. It is hard to realize how completely helpless she really is.

These replies give minus scores for all locomotion items. (Item 12 minus on later evidence for self-help.)

E. What does she do to keep herself occupied? Does she sew, or read?

I. No, she does practically nothing all day long. She does no reading and nothing at all useful.

E. Does she occupy herself at all?

I. Yes, she fills in the time at one thing or another for a half-hour or so, or sometimes for as long as one hour, when she is at her best, without demanding attention. Mostly we have to help keep her occupied by suggesting things to do. We try to keep her occupied by giving her little things to do which are helpful, such as folding the laundry, which she can do by sitting up to a table. She will do things like this for short periods, but continued effort makes her nervous. She moves things about within reach and straightens up the objects on the table. We keep thinking she could do more if she would try, but I guess the fact that she doesn't try is itself a sign of her weakness.

E. She doesn't then do these things on her own initiative?

I. She very seldom any longer does anything of her own accord. If we give her things to do she will stay at it for a while, maybe fifteen minutes or longer, if it does not require too much concentration.

E. I assume then she does not really do any helpful work that requires getting about?

I. No, that would be out of the question.

E. Do you give her things to do which require the use of cutting, such as with scissors?

I. No, we are afraid to trust her with knives or scissors or anything that has sharp points. We don't even let her have a sharpened pencil.

E. She doesn't amuse herself then by making drawings, even of the simplest kind?

I. We can't let her have a pen, and don't like to have her have a pencil. We keep crayons handy in case she wants to use them, but she no longer shows any inclination to do any writing or drawing.

E. Do you rely on her for help in carrying messages from one person to another or performing little errands for you, such as putting objects away or bringing them?

I. No, that is out of the question because she isn't able to get about the room or to help herself, much less us.

In the occupation category, Item 7 is scored plus, Item 19 minus, 22 plus (because of the orderly activity), 24 minus, and all subsequent occupation items minus.

E. (Taking up communication items.) I understand that she no longer reads or writes then?

I. Yes and no. After she stopped writing on her own initative, for a while she would write if we told her what to say. Now, however, she doesn't write anything at all, and as for reading, she still reads aloud with good expression, but her inflection has no relation to the meaning. She reads for a half-hour or more at a time, but her comments on what she reads show little relation to the meaning.

E. I suppose there is no difficulty in her conversation?

I. Yes, I'm sorry to say there is. She talks quite a good deal and sometimes clearly, but mostly her attempts at conversation are rambling and incoherent.

E. What kind of things does she talk about?

I. Well, she uses sentences all right, but she is unable to carry on a connected conversation such as being able to tell us anything about what has been happening while we have been away. She tries to talk to us, but most of her connected conversation is irrelevant or incoherent, or, when we can understand her, her ideas are not connected but move from one thing to another. Occasionally she has brief intervals when she talks quite sensibly, but doesn't nevertheless seem to understand what she is saying in terms of its meaning.

E. Well, if she uses sentences, does she do this in a way to convey her wants or wishes; that is, does she have any really useful command of speech?

I. We can't really depend upon what she says to understand what she wants. Most of our talk is just to humor her and keep her mind as active as we can, but what she says to us is so much like babbling or just saying words that we could hardly call it useful speech except as I said, occasionally she has a kind of "lucid interval" when she can make herself understood, but these periods are now infrequent.

E. Has she retained enough use of language so that she is able to call for objects by name, or give the names of familiar objects?

I. Yes, she does ask for objects, but she gets very badly mixed in using the names of objects. We usually can guess what she wants, but we have to use our imagination. If we hand her something and ask if that is what she wants, she is just as likely as not either to refer to it by the wrong name, or to again call for what she wants using another name. I mean she gets the names of objects pretty much confused.

E. But I thought you told me before that she reads and comments on what she reads?

I. Well, that is the odd part of it. I should have said that those comments are mostly just exclamations. They are usually not in harmony with the meaning of what she has apparently read, and of course we aren't really sure that she reads all the time, that is, she might be just following the copy without getting all the words.

E. But you also said she reads aloud with expression.

I. Yes, that's true. We have puzzled over this ourselves. Have you any explanation of it?

E. Let's go back a bit. Does she really understand your conversation?

I. She enjoys having people talk to her, but judging from her part in the conversation, either she doesn't understand what is said or else she cannot form her own replies, for her side of the conversation is limited, incoherent and irrelevant.

E. But does she carry out simple instructions? Does she do what you tell her?

I. Sometimes, but not always. She seems to understand very simple commands, but any directions which are at all involved she doesn't carry out. We are puzzled because sometimes she understands and does fairly difficult things and then again she seems to have no idea of the simplest kind of request we might make.

E. Have you any other comment to make?

I. What puzzles us most is the variation in her use of language. For example, she still can say most of the ritual prayers to which she has been accustomed, and when she does, her speech is perfectly clear. Sometimes, too, she has very brief periods in which she recalls or relates some former experiences, but in the midst of such a conversation her mind is likely to wander to something entirely foreign.

The interpretation of items in this category is made difficult by the contradictory nature of the information obtained. The information is consistent with the picture of extreme dementia involving interference with language functions and revealing illogical contradictions. In such a case the examiner cannot avoid being embarrassed in scoring the items with assurance because of the unstable performances of the S. The description of performances is clear enough, but the evaluation of them for scoring purposes can hardly be made very precise. In this case the scores assigned by the examiner were as follows: Items 1 and 10 plus, Items 17, 31, 34, 44 and 73, plus-minus, and Items 58 and 63 minus. All other items in this category are minus. These scores are somewhat difficult to justify with complete satisfaction and the examiner has perhaps been somewhat generous on some items with compensating severity of judgment on other items. The instability of performance is indicated in the plus-minus scores, where performance is sometimes, but not habitually, satisfactory. Another examiner might have extended the plus-minus scores to other items depending upon the rigor of interpretation for practical purposes. The actual description of performance is more important than the scores assigned, since the total score of the S will not vary greatly as a result of uncertainty in assigning borderline scores even in so difficult a case as this. Incidentally the student may be interested in the "demergent" plus-minus score of the deteriorating person in contrast with the emergent score of the maturing S.

E. (Continuing the examination in the self-help category.) You have told me that she is pretty helpless. What does she do in the way of looking after herself?

I. Do you mean in getting around?

E. Yes, for one thing. Do you have to move her, or does she help herself?

I. Well, as I said before, she does get around the room to some extent, but not at all actively. You remember I said she is likely to fall over if she tries to walk. She does sit up in a chair and you remember I said she was able to do some work at the table. She now has a fear of falling and while she turns over and can bring herself to a sitting position in bed, she doesn't pull herself upright to a standing position, and never stands alone, or if she tries to, she is pretty certain to fall.

E. Does she get about the room by crawling on the floor?

I. No. She doesn't even do that. If she falls to the floor, she just lies there and cries for help until we pick her up.

E. Does she help herself when in difficulty?

I. I would say not. Even the simplest obstacle is difficult for her to overcome. She isn't able to move her chair from one part of the room to another or to turn the lights on or off, or to raise or close the window, or even to lower the shade. Is that the kind of thing you mean?

E. Yes, and more than that. Is she careful in avoiding ordinary dangers?

I. No, we have to pay careful attention to the things around her. If she tries to move from her chair she is likely to fall. As I said, we don't let her have anything except blunt instruments. She's even likely to knock things over, and shows no discretion at all in protecting herself from even the simplest hazards.

E. Do you have to help her at the toilet or does she do this for herself?

I. She has to be taken to the toilet. Indeed, she doesn't even tell us when she needs help. We have to anticipate her needs, and even with care she sometimes has an "accident" like a small baby would.

E. How do you take her out?

I. We have a wheel-chair in her room and another on the porch and for use in the yard. Actually it is so difficult to move her that she spends practically all of her time in her room. We used to take her out in the car, but this is much too trying. Her wheel-chair is practically a baby-carriage, for she doesn't even wheel herself around.

E. Is she still able to tell time?

I. No, she doesn't seem to have any appreciation of time, and pays no attention to the passage of time. I don't know whether she can still tell time from a clock or not, but actually she makes no use of any kind of time-piece. If it is a question of giving her medicine every half-hour or so, she doesn't have enough idea of the passage of time to do this by herself.

These self-help general items on the basis of this (and previously related) information are scored plus for Items 2, 3, 5, 6, 8 and 13. The scores are minus for Items 9, 15, 23, 26, and the remainder of the self-help general category. Item 12 (locomotion category) is also minus.

E. As to feeding, does she feed herself at all, or do you have to help her?

I. She is able to drink from a cup and even a glass if we hold it for her. And she still does this without spilling things. When she tries to drink without help, which she sometimes does, she doesn't succeed very well and spills quite a good deal. On the other hand, she has her "good days," and then she is able to drink by herself without help.

E. Does she do this very often?

I. Not as a rule, but sometimes. She is doing this less and less as time goes on.

E. You have said that she is confined to her room and is unable to get about. I suppose this means she would not be able to get a drink by herself?

I. That would be quite out of the question. She doesn't walk around, would not be able to get herself a glass or reach the tap. And she would drop the glass anyway.

E. Does she have control of saliva, or if not, does she wipe her own mouth?

I. She sometimes drools, especially when eating, and sometimes before or after eating. Usually she wipes her own mouth with napkins that we keep handy, but often this has to be done for her.

E. Does she use a knife and fork for eating?

I. We are afraid to let her have a fork, because of the sharp points, and also because when she does use a fork she is so awkward and spills everything she tries to eat. She doesn't use a knife at all any more, not even for spreading her bread. And of course we have to cut her meat and prepare her plate.

E. Does she chew her food, or does she just swallow it without chewing?

I. She has had dental plates for the last twenty years, but for the past five years she has not used these because she doesn't manage them very well and we're afraid she might swallow them. I think she might be able to chew with her gums, but actually we give her only soft or liquid foods which do not require mastication.

E. Does she discriminate between things that are suitable for eating and those which are not edible?

I. She doesn't have much chance because we don't leave very many things around. However, I have never known her to try to eat something that was not fit to eat, and although we are careful what we feed her, she has very positive likes and dislikes for certain things and will refuse to eat things she doesn't like.

E. Does she remove the wrappings from candy or the coverings from food that may need peeling?

I. She doesn't have a chance because we prepare all her food for her. I have noticed, however, that if there are things around that might be eaten before they are prepared for her, she never removes the peelings or wrappings herself. For example, she will not eat an apple until we have peeled it for her, and she makes no attempt to peel a banana. If we have wrapped candy on her tray, she leaves it until we have taken the wrapping off for her.

E. Does she feed herself with a spoon or does she have to be fed?

I. We have to feed her. She tries to eat with a spoon, but she's so unsteady that the results are not very pleasant to watch. So for some time we have been feeding her ourselves with a spoon.

The scores for the self-help eating items are plus for Items 11 and 30, plus-minus for Items 16 and 25, and minus for Items 20, 28, 33, and the remainder of the category.

E. To what extent does she dress or undress herself?

I. We have to do every little thing for her. She doesn't take off any of her own clothes and doesn't even help the least bit. In fact, she has to be dressed and undressed like a baby, even to the buttoning.

E. You assist her at bathing?

I. Yes, in every detail even to washing and drying her hands and face. She used to dry her hands until recently, but not any more.

This reply indicates minus scores for all the self-help dressing items.

E. (Including the lower limiting socialization items in relation to self-help.) You have said she manages to call when she needs something?

I. She cries or somehow manages to attract our attention when she is in trouble or wants something. She also demands quite a good deal of what I suppose you would call social attention in that she wants to be entertained like a small child would. As I have said, she tries to keep up her end of a conversation and likes to be with company if it isn't overdone.

E. Does she still recognize friends and members of the family?

I. Yes, she knows the immediate members of the family and the nurse, but sometimes seems to confuse them when talking with them. She doesn't like to be helped by people with whom she is not closely acquainted.

E. Does she show any desire to be occupied in what might be called play or recreation with other people?

I. Only as I have indicated, when she wants to talk with people or be with them, or maybe to "read" to them.

E. I understand she used to play and sing a good deal. Does she still like to entertain people?

I. Once in a while she still sings and her voice is still clear and pleasing, but I notice that she does this less and less. Also she likes to say the ritual prayers especially when others are present and likes to do this for the members of the family.

E. I suppose anything beyond this is out of the question?

I. Quite.

E. Has she shown any disposition to return to a childish belief in fairies or the sort of thing represented by belief in Santa Claus?

I. No. She seems to have no interest along these lines. She takes a childish interest in Christmas and other holidays like Easter, but seems to have no appreciation of the significance of the occasion outside its personal pleasures. I wouldn't say that she has returned to a belief in fairies, but rather that these ideas are now beyond her.

The scores of the socialization items are plus for Items 4 and 14, plus-minus for 49, and minus for the remainder of the category.

Summarizing this examination, we have plus scores to Item 8 inclusive, which becomes the basal score. Additional plus items are Items 10, 11, 13, 14, 22 and 30. Items obtaining plus-minus scores are 16, 17, 25, 31, 34, 44, 49 and 73. All other items are minus. The total score is therefore a basal score of 8 plus 10 additional points (6 plus and 8 plus-minus). This is equivalent to 18 points, or SA 1.1, SQ 4. It is interesting that the performance level as estimated by the informant is only 1 year, which might, however, be interpreted as between 1 and 2 years.

In interpreting and commenting upon this score, it is necessary to bear in mind the rather obvious accompanying circumstances. The S is clearly in a state of severe and permanent progressive deterioration. As will appear from the examination of this same S at her prime, her present level is a reduction to early infant level of performance from a previously superior adult performance. It is impracticable in examining the S for present status to allow F-score credit, because the previously successful performances have been lost as a result of presumably permanent mental impairment (p. 284).

The examination is especially interesting as well as somewhat difficult by reason of the dementia and the rapid and progressive loss of performance which on many items is revealed as uneven, unstable, or irregular. We may observe therefore a number of performances which are in process of being lost through deterioration as compared with the emergent items which may be observed among developing infants and children. The number of these (eight) is itself significant and the examination is embarrassed by the difficulty of assigning precise objective scores to these performances which are of such dubious character, or are sometimes satisfactorily performed but not habitually. Attention may also be called to the range of the examination and the uneven spread which is so much more charactistic of dementia than of normal infancy.

This examination suggests how the information obtained by dealing with several items at one time applies to several or all items of a group. The experienced examiner will readily observe the practicability of omitting some items in a given category because of obvious inability to perform these items as indicated by information obtained in other categories. Thus the fact that this S is confined to her room and is unable to get about, immediately gives automatic scores to a considerable group of items for which locomotion is a prerequisite. On the other hand, care must be observed to insure that failure on a particular item is not offset by some substitutive performance on another item in respect to which the first performance might seem to be prerequisite. It is therefore advisable in the interests of thoroughness to check each item independently as has been done in the above illustration. This sometimes reveals inconsistencies in the information obtained and the examiner is able to check back and forth on the Scale as a whole.

The examiner must be specially cautious not to challenge the veracity of the informant from the point of view of intent to mislead, but should tactfully check the internal consistency of all information as related to the Scale as a whole. When this is done, some apparent inconsistencies will be justified by the variations in requirements from one item to another which at first thought seem to contain the same essential preconditions.

CASE IV. (AT PRIME.) *Socially superior adult woman.* LA 70, SA (*Retrospective*) 30+, SQ 120+.

The present social competence of this S (as just revealed) is that of a one-year-old infant reduced from a previously superior adult level as indicated by the orienting information at the beginning of the examination. The examiner now proceeds to determine the condition of the S at her prime.

The two examinations are specially interesting as involving both extremes of the Scale. It would, of course, have been feasible to plot the course of the deterioration by making a series of examinations dated at successive chronological stages of the period of involution. It would also have been possible within the limits of information available to have made successive examinations of her development before reaching her prime and throughout its duration.

These possibilities of the retrospective examination are extremely important for certain purposes, especially in family history studies (cf. p. 466) and in gerontological studies (cf. p. 484) where the status of adult or postmature propositi must be taken at (or projected to) their prime. Such examinations accent the importance of insuring for *any* examination whether the S was formerly at some higher or lower level of attainment in total performance or on particular items.

The examiner should therefore be on the lookout for the possibility of loss or recovery in performance which is either temporary or permanent as provided for in the instructions for F-scores (p. 283). It will be recalled from those instructions that F-credit is not allowed if the S at the time of examination shows loss in performance as a result of senescence or relatively permanent mental or physical impairment. In all examinations, therefore, the examiner should be on the alert to raise the question from time to time, "Has the S *ever* done so and so?," or "How long has he been doing (or not doing) so?" Likewise, F-scores should not be used in the specific measurement of social competence during critical episodes, such as *temporary* deterioration, except as the measurement of such episodic deterioration is itself a direct issue.

In the present case, having completed the examination for present status, the examination continues as follows:

E. You told me that your grandmother, Mrs. C, was not always like this.

I. Yes, she was previously well-known as an unusually capable woman.

E. (Seeking a tactful approach to the examination as to former status and date.) Will you tell me something about her accomplishments in those earlier days?

I. People have told me that my grandmother was an unusually energetic and resourceful person. She married early, but from the time of her marriage, and in spite of a large family, she was very active in nearly everything of importance that was going on.

E. What were some of the things that she did?

I. For many years she sang in a church choir, and even now has a good voice. For years she was active as the head of an organization for city beautification, and was successful in having streets widened, trees planted, buildings kept in repair, and so on. She also promoted missionary extension work, was an active member of the local Historical Society, and was a member of the Colonial Dames. I don't remember all the different organizations to which she belonged, but I know there were quite a number and rather important, and that she wasn't one to shirk responsibility.

E. (Organizing information of the socialization items.) Would you say that she was also well-known outside her community, say in the state, or was her work perhaps even of a national character?

I. No, not quite that. She held offices in these societies, but to the best of my knowledge her work was entirely in this town. Of course she was interested in the state organizations, but I don't believe she had any active part in them.

E. Aside from these societies, did she hold any important public positions? Was she active in business or politics?

I. I wouldn't say so. She had a wide interest in civic betterment, but aside from holding offices in these organizations that I have mentioned, she didn't really hold any important public positions. She was never in business, and had no occasion to manage other people's affairs except as I have indicated.

E. But she did go outside her own family to help other people?

I. Oh, yes. Not only that, but people came to her from all around the neighborhood, and when there was any important movement affecting the church or the schools, they would come to ask her advice about it. People used to come to her with their family troubles, or in case of severe illness in the family. She seemed to be a person to whom people came spontaneously for advice and sympathy.

E. How long did these activities continue?

I. Well, almost up to the time when she was about 70 years old. Of course I don't have very much personal recollection of this, but it has been talked about in the family a good deal. Even after 50 or 60 she still used to do a great deal. Then she became less active, but not any less interested. Mother has often talked about how she used to patch up other people's difficulties and bring people together who had perhaps had serious quarrels.

E. When did you first personally become clearly aware of your grandmother with some sense of personal detachment?

I. I'll have to think that out. I'm now 29 and she is 84. I was always very close to "Nannie" (that's what we call her) and she humored me by talking about herself when we exchanged confidences. And then later she would talk reminiscently about the old days. Or mother would relate her achievements as something we should be proud of as a family.

E. But can you "date" some point when you formed your own independent judgment about her?

I. Yes, I can. It was at the end of my first year in high school. We had a long talk one night that stands out clearly in my mind. It was sort-of woman to woman (although I was only 15). I needn't tell you what it was all about, but next morning and thereafter it seemed as if we had changed places and now I was looking after her instead of her watching me.

E. And she was then, let's see, about 70?

I. Sixty-nine, approaching her seventieth birthday.

E. And the things you've just told me about her — was she like that then?

I. Yes. I'm sure she was still as I recall her now about that time. But from family talk I'd say she was "turning the corner" or, as you might say, she had topped the hill and was beginning to let up.

E. You don't remember her so clearly before then?

I. No, except from mother's frequent conversation. If you'd care to ask her, I'm sure . . . . . .

E. Well, let's assume that she is 70 and you're a sophomore in high school. What you've told me about her is pretty sound?

I. That's when Gene and I were budding pianists. He was fond of her, too. Yes — I'm sure I can "place" her then, and looking back I often think that she must have already been facing the sunset.

The examiner accepts that "dating" and proceeds as if the S were at LA 70.

The socialization items are readily scored plus for Items 103, 104, 109, 110, and minus for Items 115 and 117.

At this level in this case the socialization items are rather obviously related to the self-direction items, and might well have been given at the same time had the "dating" been already determined.

E. And in financial matters, was she a good manager?

I. Yes indeed. She and my grandfather were quite well-to-do at the time of their marriage. Of course I don't know all this from personal knowledge, but from what I have gathered from family conversation. Before her marriage she was carefree and gay, but when her husband began to waste their resources as he did in later life, she took charge of things as far as she could, and became the business manager of the family. She had a large household and several servants, and this required not only good management, but careful spending. Then, of course, she had an important share in the things that were done by the societies of which she was a member. You see, some of these had quite a bit of money to spend, like the Historical Society. And while she was never treasurer of any of these, she had an important part in decisions involving the spending of money in fairly large sums.

E. Would you say she had good business judgment in the use of money?

I. Well, aside from running a large household economically (her credit was always good everywhere) she persuaded my grandfather to build the house which my mother now uses as a private school. In those days this was considered a mansion. She tied up quite a bit of their money in this house and its furnishings. She also provided well for her children in the way of education and getting them started. I don't believe she did much in the way of business investments. She was always cautious about that sort of thing and preferred to put her money into property. Would you call that investment? Then when my mother started the school, she used to do the buying for my mother.

E. And would you say that she was as capable as this when she was 70?

I. That would have been 1921. Yes, mother still relied on her completely.

The self-direction items are scored plus for Items 100, 101, 102, 105, and 112.

E. (Shifting to occupation category.) You say she helped your mother start this private school. I suppose this was after her own family was more or less scattered?

I. Yes. When the family broke up my grandmother hadn't much to do, and had this large property on her hands. Things had been going pretty badly with the family finances due to my grandfather's carelessness in financial matters, endorsing people's notes, and putting money into doubtful business ventures. My mother then started the school, with my grandmother's help.

E. In this capacity, what kind of actual work would you say Mrs. C. did?

I. Well, in view of her previous experience in managing a pretty large household, she took over the principle responsibility for managing the help, planning the meals, buying food, and things like that, while my mother planned the educational program.

E. Did Mrs. C. actually do this on her own responsibility or under your mother's direction? And, don't forget, was she really doing it in 1921?

I. They had a division of responsibility according to which my grandmother was responsible for the general management of the school as a kind of chief steward would be, but my mother really planned the work as a whole and really had the final responsibility for what her mother did. But as I said, my grandmother managed the help and supervised the general housekeeping side of the work.

E. Would you say this work was of professional character?

I. No, it was more like responsible household management. My mother did the professional work on the care and training of the children that came to her school.

E. Did Mrs. C. do any professional work in other directions? Or did she write or paint or anything like that?

I. In the various societies to which she belonged she had an active part in the things that went on. Some of these were literary, some artistic, and some historic, and I guess it was taken pretty seriously, but it wouldn't get very far outside their own group.

E. She didn't publish anything then, or attain any serious recognition for artistic or other kind of ability?

I. No, I wouldn't think so.

E. This kind of work was really more recreational in character, then?

I. Yes, she never was one to waste any time even when she was free to do as she pleased. She was always doing something worth while, very fond of music, keeping up on her own singing, was widely read, and was regarded by all who knew her as a brilliant conversationalist. She was at her best when people would come to the house for an evening of cultured conversation in such things as music, art and literature.

E. Did she plan her work carefully so as to save her energies, or did she do her work rather hit-and-miss?

I. I wouldn't say she was exactly systematic, as men think of their work, but she certainly managed to get things done. She wasn't one of those women who are always behind schedule. One reason she had so much time for outside things was because she saved her energies at home.

E. Was she progressive or old-fashioned about things?

I. I would say she was quite modern. She was particularly keen on getting the new labor-saving devices which have made housework so much easier for women. She was quite progressive that way.

E. Did this go to the point of developing original ideas or planning any new systems of management?

I. If I understand what you mean, I would say she was both inclined to make good use of other people's ideas and was very adaptive in adjusting herself to new conditions. But if you mean did she create her own future, I would be rather doubtful; for example, as compared with my mother, I would say no. My mother planned the school, has kept it running, and you know has a reputation for being progressive, but my grandmother mostly followed along on this, whereas my mother did the leading. My grandmother was very quick to use other people's ideas or to get behind something that other people started. Of course in a smaller way, she started a few things herself, but I guess these weren't as important as you had in mind.

The occupational items are scored plus for Items 106, 107, 108, and 111; and minus for Items 113, 114 and 116. The examination is especially interesting as indicating plus scores on these last three items for the

informant's mother, but minus for the informant's grandmother, that is, the S of the examination.

The examination terminates in this case as with most superior adults by the use of the three categories—socialization, self-direction and occupation. All self-help items are plus beyond question. The examiner knows from incidental statements not here included that the S has travelled widely on her own responsibility, thus satisfying the locomotion category, and from the S's activities as described, all communication items would be scored plus.

The total score, therefore, is represented by a complete series of pluses, actual or assumed, to Item 112 inclusive. Items above this point are all minus. The total score is therefore 112, the basal score being also the total score. This score is at the upper standardization limit of the experimental sample and has a theoretical age value of 30+. The quotient score is therefore 120+ (25-year ceiling). It is important to note in considering the superior adult's quotient scores that these scores are indeterminate and may therefore fall below quotient scores at earlier ages where the limits of the examination can be more accurately determined.

CASE V. *Blind adult woman.* LA 49, SA (*self-informing*) 18.2, SQ 73; SA (*double scoring*) 22.0, SQ 88.

As a final illustrative examination, we present a subject whose mental ability is at the lower quartile of the average adult level but whose social performance is reduced by the handicap of congenital blindness. The illustration is extended (a) by employing the S as her own informant, (b) by use of double scoring designed to evaluate the limiting effects of the specific handicap, and (c) by including the variable of long-continued residence in one school as pupil and in another as employee.

We note from other evidence (p. 527) that the social competence of the blind in general is reduced about 40 per cent as compared with sighted S's. Some of this reduction is indirectly due to the intellectual limitations that may accompany blindness and some is directly due to the sensory defect which interferes with the useful capitalization or functional expression of innate aptitudes.

We note further that both these effects are influenced by (a) age of onset, and type, cause, or severity of the handicap;

(b) timing and quality of instruction; (c) protective and stimulating influences of environment (home, institutional, and general); (d) degree of dependence, self-assertion, resourcefulness (or personality factors); (e) use of various aids to communication (Braille, typewriter), locomotion (guides, "seeing eyes") and occupation (mechanical and equipment devices); (f) public sympathy or antipathy; (g) personality adjustments (introversion, frustration, dependency and their opposites); (h) degree of intelligence, mental organization, accessory organic impairment, and so on.

In realistic experience we see all degrees of dominance and acceptance in respect to these variables, from S's to whom blindness is "only an inconvenience" to those who submit apathetically to its most regrettable consequences. Intellectual aptitude and personality type powerfully influence these outcomes, as do also the experiences gained or lacking prior to the onset of the handicap. We have seen S's whose blindness proved only a minor deterrent to performances on any but a few items of this scale, and others whose lack of vision gravely affected their success on many items within their maturational range.

We must note also the comparative performances of blind S's in the generalized community as contrasted with protected environments. Thus the blind may succeed in communicating with each other by reading and writing in Braille, but might be "illiterate" (non-communicative or literally *incommunicado*) with respect to the more general (sighted and non-Braille-versed) population — a significant distinction between social maturity and social competence. Likewise the blind person dependent on cane, dog, or guide for locomotion might get about readily enough until separated from such aid.

These observations suggest double scoring (p. 292) for different purposes, namely, (1) in terms of the standards of the restricted or assisted environment *vs.* (2) the more general requirements of *any* environment. This requires regard for unforeseen contingencies which aggravate the handicap, such as absence of persons or things or environments which reduce the S's "competence" without affecting his "maturity." More immediately we gauge by double scoring the *presumptive* competence that the S probably would exhibit in general social life if it were not for the special handicap, i.e., what his habitual performances *might* be were it not for the blindness. Some of these problems are dealt with in the present case.

It is relevant to observe that the above comments obtain similarly for other handicaps, e.g., deafness and crippling, with pertinent modification. In the case of feeble-minded S's, however, where the handicap is mental rather than physical, the social incompetence is identified with lack of maturation, and the immaturity is due to constitutional deficiency rather than to localized defect.

The effects of early institutional care and later institutional employment have perhaps weakened the personal initiative of this S, who has seemed to accept the comforts of a sheltered scene. Yet her tone is gay, her manner sprightly, her attitude resurgently vigorous. Clearly normal attributes and insight are somewhat obscured by conventionalized behavior and thinking. And her philosophic spirit reflects a disposition more serious than her intellection is keen or deep.

Miss Mollie is nearly 50 years of age, American-born of American parents. Her father was a carpenter and later in life owned his own taxi stand. His schooling and that of his wife are not reported. Miss M. has been blind since birth from congenital cataracts. At seven years of age she became a resident pupil of a progressive residential state school for the blind and remained there until nineteen years of age. She completed seventh grade schooling there, learning to read and write in Braille. She also studied piano, organ, and voice, as well as such activities as hand and machine sewing, typewriting, and chair caning. She left that school to accept employment as pianist at a private institution for mentally subnormal children. Here after a period of adjustment she has spent many happy and useful years, loved by children and employees alike, and contributing in large measure to the welfare of both as companion, accompanist, composer, and example.

Earlier in her life she had light perception, but this has gradually been lost. She has spent her entire adult life in the second institution except for occasional visits to friends and relatives. As an employee she receives a fair salary with maintenance. One of the girls of the school assists her in many little ways such as at table, in dressing, and in getting about.

She accepts the examining situation with mildly self-conscious reluctance and modest self-deprecation, but is pleased to be asked for her assistance and cooperates freely.

E. Miss M., you have been hearing about the Scale which we have been developing for measuring the way in which people grow up and take more and more care of themselves as they get older. I am asking you to help me by permitting me to make an examination of you which I can use to explain this method as it is applied to a blind person. Ordinarily the examination is made through a third person. I want to show how the examination is conducted when a person reports on himself. I also want to show in what ways, and by how much, blindness may handicap a person for getting along, and the extent to which this handicap can be overcome by the blind. Many people do not understand how well a blind person can look after himself.

I. Yes, I know about your Scale and am glad to help you all I can. But I'm afraid you may find out more about me than I'd like you to know!

E. You already know *my* good opinion of you, and it is not likely to be changed by this examination. If my questions seem embarrassing or get too personal, please don't hesitate to say that you would rather not answer certain questions.

I. Oh, I don't mind! I shall be glad to tell you all that I can.

In this examination the procedure is simplified for the reader by taking the categories in the order of their printing in the manual. This happens to be feasible in this case, but the student will recall that the skilled examiner may alternate questions from one item or category to another in any order that seems best suited to the circumstances. In this examination we shall have occasion on a few items to carry questioning into other categories before completing a given category by itself. In beginning the examination the examiner understands or quickly observes from the orientation data that Miss M. is an average adult who is quite capable of looking after herself in most respects.

E. You have no trouble telling time, Miss M.?

I. No, none at all.

E. But how do you do this, in view of your blindness?

I. I have a closed watch with the crystal removed, and I tell time by the hands and the points of the face.

E. You mean you have no trouble "feeling" the time by the position of the hands? And how accurately can you do this?

I. I can tell to the exact minute without any difficulty. I don't know what I should do if I couldn't, for I have to be at all sorts of places during the day, and I mustn't be late.

E. But if you don't have your watch with you?

I. Oh, but I *always* do!

E. Suppose it's out of order?

I. Then I can always ask someone. Or I wait for the clock to strike and then maybe start early. Besides I can guess time pretty well by what goes on. You'd be surprised what you can do when you can't! We don't just give up, we substitute.

E learns something! I is mildly defensive in her self-consciousness and yet prides herself on class resourcefulness. Her simple yet gratuitous and sometimes ingenuously sage remarks reveal a "comforting" normality. E is sympathetically "compensating" and hence is somewhat indulgent in scoring. He interviews somewhat gingerly and runs the risk of overestimation. More experienced E's, clinically hardened to the S's handicap, might be more forthright. The S senses this embarrassment and relaxes from her own sensitiveness by offering observations which E interprets as friendly rather than patronizing. Thus rapport is assured, but whether by E or by I might be a question.

Item 66 is scored plus. But note the use of a *particular* timepiece as opposed to timepieces in general. The S's *use* of time reflects maturity and competence; the *telling* of time is sensorially restricted in the latter respect. The other items in the self-help general category may be taken for granted for this S in spite of blindness, or may be incorporated in later items. Item 51, for example, is taken care of later in the dressing items.

E. And how about looking after yourself at the table?

I. Well, Mary helps me, but I get along pretty well.

E. Are you able to feed yourself without difficulty?

I. Well, I'm afraid I spill more or less, and I'm always self-conscious in the presence of strangers. But usually I manage pretty well.

E. Just how much help does Mary give you, and how much do you help yourself?

I. Well, I have to have my plate prepared for me and my meat cut.

E. You mean you don't use a knife?

I. No, I never use one. I don't even spread my own bread. I've tried a number of times but have not been very successful. Some of us can do it, but I've always been self-conscious and afraid of "making a mess." In fact we have been advised not to try to do this for ourselves.

Here we see class-consciousness, timidity, and previous environmental suggestion which are not successfully combated by the S.

E. But you eat with a fork without trouble?

I. Yes, I spill a little bit, but not very much. No, I don't rely on a "pusher"; I just feel around my plate with the fork.

E. And you have no trouble getting a drink for yourself?

I. No, not at all.

E. How do you do this?

I. I go to the cupboard and get a glass and go to the cooler or to the faucet.

E. But how about in a strange place?

I. Well, of course there I'd be at a disadvantage, but I can always inquire, and when I know where the cups and the faucet are I'm all right.

In the self-help eating category the items below Items 38 may be assumed plus. Items 38 and 39 are plus, and Items 62, 67 and 75 are minus. The specific inability to use a knife therefore introduces three minus scores at the juvenile level as a result of the specific handicap. The element of timing item emergence ("How long have you been doing this?") is omitted because this S's advanced age makes such timing irrelevant.

E. And do you also receive help in dressing yourself?

I. I dress myself entirely except for tieing.

E. How much help do you get?

I. Of course, I tie my own shoe laces and I do tie ribbons and sashes, but often I don't know how they look, and I have to ask people. Frequently ribbons and sashes have to be retied for me. At least I have to ask people.

E. And your nails, do you care for them?

I. Mary files my nails and polishes them (I don't use the real bright red polish). I clean my nails myself.

E. And (pardon me), your toenails?

I. Oh, I look after those myself.

E. And do you select your own clothing?

I. Yes, I decide what I'm going to wear. Of course I often ask people how I look or what they think I should wear for special occasions.

E. And do you otherwise care for yourself in dressing?

I. You mean, do I wash and bathe myself? I do all those things for myself and never receive any help.

E. And you wash and dry your own hair?

I. Yes, without any trouble.

The self-help dressing items all may be assumed or scored plus except Item 86. Item 86 is scored plus-minus on the ground that the S usually does everything for herself but requires some help in tieing and checking and care of nails for special occasions.

E. To what extent do you go about by yourself?

I. I go by myself to and from school and from one cottage to another in the girls' group. If I go elsewhere about the institution someone guides me.

E. And do you go to town alone?

I. No, I never go alone. I feel the need of being guided. I think I could get there all right, but I have a fear of traffic and am afraid to cross the streets.

E. You then don't, I suppose, go to more distant points alone?

I. No, someone always goes with me. I used to go by myself when people would put me on the train and I would be met at the other end of the trip. Usually now my mother or my nephew comes for me when I make a trip.

E. When someone is with you, does this person act only as a mechanical guide who follows your instructions? I mean, do you go places by yourself *except* for being guided? Do you *direct* the guide? In this sense do you "go" very much?

I. Very seldom. I might even say hardly at all. I have lived in the institution all my life, and my home is here. I don't like to bother people to take me around. Sometimes I ask people if I may go somewhere if they are going. The teachers often take me. Mostly I just go into town when they go.

E. Did you mean you don't go to town or to other places on your own initiative?

I. Hardly at all. I did plan a trip to Massachusetts one time with my mother. Miss Brown helped me plan the trip, but I bought the tickets, made the arrangements, and paid my mother's way. I haven't very much occasion to go places, and don't care to go a great deal, except for some special purpose.

The locomotion items are scored plus below Item 61, and minus for Items 61, 77, 92 and 96. These four items are clearly "lost" because of the sensory handicap without which the performances would certainly be plus. Yet the reader will note here, as in other parts of this examination, a tendency toward dependency on the part of the S. This appears to be partly the product of her disposition which is characterized by a certain

timidity and lack of aggressiveness. It is also influenced, no doubt, by the fact that since seven years of age nearly her entire life has been spent in an institutional environment. On the other hand the reader will also note in these and in other items in this examination (as well as in others) how the informant tends to apologize for failure on borderline performances as due to lack of opportunity, lack of incentive, and so on. Hence the distinction between maturity and competence is not unequivocal, since the handicap appears to affect both.

E. And as to your work, Miss M., just what do you do?

I. For about thirty years I have been the school pianist.

E. And what does this involve?

I. I play for morning and Sunday assemblies, for teachers' entertainments, for such silent movies as we have, for physical education classes, and for the music education classes. I even teach a few of the brighter children and help them at music practice. Usually I have a pretty full day.

E. Do you do any performing?

I. Yes, I play piano numbers on programs and at various parties or entertainments.

E. Have you done any composing of your own?

I. Well, some, but not so very good. (Miss M. is modest.) I have composed a few marches and some not very difficult romantic compositions.

E. What other work do you do?

I. I care for my room. I used to use a power sewing machine and do other kinds of handwork, but for many years now my entire work is piano playing. I do some knitting and sewing for recreation.

E. Do you plan your own work, or is it laid out for you?

I. Much of it is routine in the course of the day. For the rest I do pretty much as I'm told. I mean, the work is laid out for me and there is no occasion for me to plan it for myself.

E. Do you direct the work of any assistants?

I. No. I just do the work that I am given to do. Of course sometimes I play for the children out of hours to entertain them. Or I accompany employees.

The occupation items below Item 98 are scored plus or may be assumed plus, or scored plus F. Item 57 might be scored minus but is at this age irrelevant as outgrown or replaced by other items. Items 98 and 106 are scored plus, and the other items of this category are scored minus. There might be some question on the score for Item 106, but this is definitely above the apparent level represented by Item 98, since the S has for many years held a responsible position involving a fair degree of specialized skill. Item 107 is scored dubious minus in connection with the communication and socialization categories.

E. I understand you do quite a bit of reading and writing?

I. Do you mean how much of this do I do? Of course I read Braille. I get Braille books and magazines regularly from the library and enjoy reading magazines and fiction. I read the Braille weekly news, the simpler magazines, and the Christian Record in Braille.

E. Do you do much serious reading?

I. Nothing very serious. I do cross word puzzles in Braille.

E. Have you ever read the Reader's Digest in Braille?

I. I think I should like to, but I have never seen a copy. It's pretty expensive and I can't afford it. And I think it's too expensive for my friends to subscribe to for me. Somehow I've never tried to get a copy from the Braille library.

E. Do you read only for recreation?

I. Well, I like to keep in touch with what's going on both in my reading and in conversation with other employees. I use my radio a great deal and have a pretty fair knowledge of what's going on, like the present trouble in Europe, but I guess I'm not so much interested as I should be.

E. Do you do much writing?

I. I have a number of regular correspondents and quite a few people that I write to from time to time. I also do some purchasing by mail, such as ordering music, and Miss White helps me in occasional buying from catalogs.

E. Do you write in Braille?

I. Not any longer very much, though I still can. And now and then I use manuscript or print-writing. But I do nearly all my writing on the typewriter. My best effort was a story of my life that I wrote up for one of the magazines for the blind.

E. And when people write to you—letters, bills, etc.?

I. I have to get someone to read them for me.

E. And how about using the telephone?

I. Yes, I use the telephone, although I don't have much occasion to do so. I make my dental appointments over the telephone and things like that, or calling my friends in town for something we're doing.

E. But you're not able to look up numbers in the telephone book?

I. No, but I have no trouble getting someone to do this for me. You know, people are always willing to help us in little ways. I use the long distance telephone sometimes if I have to get in touch with my mother.

All items in the communication category are scored plus with dubious scores on Items 79 and 91. Item 79 is allowed a dubious plus on the ground that the telephone book is used with the help of others at the S's particular request. Item 91 is scored a dubious minus on the ground that the S does not consistently follow current events and does not participate very actively in serious discussion of current news. Items 78 and 90 might be questioned on the ground of reciprocal reading, but this the S provides for through others.

E. I was asking you a while ago about going to different places alone. Do your answers to those questions mean that you do not go out by yourself during the day or at night on your own responsibility?

I. I never go out unless I am guided except, as I have told you, for some parts of the institution. And I don't like to ask other people to put themselves out to look after me.

E. Do you care to say that you do not go out during the day or night on your own responsibility even if your guide might be considered only as a mechanical assistant?

I. If you mean do I take the initiative in going out being responsible only to myself except for the guide, I guess I should say no. I haven't very much need to be away. I've always led a rather sheltered life. But the folks often take me with them even though I don't often ask to go.

E. And we were talking a while ago about dressing yourself. Do you buy your own clothes?

I. I buy all my little things such as toilet articles and underwear. I also buy such things as I use for gifts. Sometimes I buy things for the children which they ask me to get for them. When it comes to my more important clothing, I get what I want and pay for it, but I do feel dependent on others for advice and help.

E. In the matter of coats and overcoats?

I. I like to have somebody with me to advise me, but of course I decide for myself before I get through.

E. If you wanted to buy a fur coat, for example, would you feel that you could do this?

I. I'd feel that it was pretty extravagant, but if I had the money and someone to help me select it, I'd do so. Of course I don't have much need for clothes because I don't go out very much, but I manage to keep my wardrobe fairly well supplied.

E. Do you have a regular income, and if so, what do you do with it?

I. Of course, I'm paid for my work and this money is entirely mine.

E. If it isn't being too personal, what do you do with your money?

I. Well, I buy my own clothes and pay for my trips, and my doctor bills. I send small sums occasionally to my mother, but not very often.

E. Are you saving any of your money?

I. I have some money in Building and Loan, and I have a fair savings account. This money is in my own name, but I consult various people about how to look after it. My ordinary expenses I pay as I go. I don't run any bills or have charge accounts.

E. Do you contribute to the support of anyone?

I. Except for sending a little money to my mother now and then, I guess not. I'm keeping all I can for my own needs, and my mother gets along pretty well by herself.

E. Would you say that anyone is looking after you here, or that you are entirely managing your own affairs?

I. Well, people are kind and thoughtful and always willing to help me. I go to certain people quite a good deal for advice, but of course I make my own decisions.

E. Do you encounter any difficulties in managing your own life?

I. Well, I guess no more than most people. I manage to get along pretty well and have a good many friends. If I have any enemies or if I annoy people by what I do, I have never heard of it; not that I'm perfect, but I don't believe that I cause other people any serious trouble.

E. I suppose you have no occasion to make purchases for other people?

I. Only my own gifts and occasional little things that the children ask me to buy for them.

E. And do you look after your own health, or is this taken care of by someone else?

I. Oh, I'm not that helpless. I go to the doctor when I need to. I make my own appointments with the dentist. My health is generally pretty good, and I try to keep it that way, especially when any of the children have colds.

In this category all items are actually or may be assumed plus except Item 112. Items 93 and 99 are dubious plus as not vigorously exercised and as requiring guide assistance but as satisfying the self-direction requirements.

It is especially significant that in this category of self-direction items, the S is socially independent although personally and dispositionally dependent on others for consultation and advice. The lack of social aggressiveness and independence of action may be noted as a personal dispositional trend aggravated by her handicap and her long-sheltering environment.

E. I was asking you a moment ago if you helped to support anybody else, and you said that you do not. Do you take any active part in social matters outside your immediate work? I mean, do you belong to some organization that works for the good of the community?

I. No, almost my entire life is spent in the institution. I give a little money now and then when there is some kind of a drive on, and although I don't go to church regularly, I give a little money for the support of the church. But you can bet I'm buying my full share of War Bonds!

E. Do people come to you for help and advice as you go to them?

I. I help the children in little ways. People don't seem to need my help as much as I need theirs. Some of the older girls I advise and help like an older sister would.

E. And I was asking you before about how you occupy your free time.

I. Mostly at reading and listening to the radio.

E. Do you do much in the way of playing games, such as card games, or do you have any special hobbies or active interests?

I. I play rummy and solitaire and anagram puzzles with the children. I never learned to play bridge or the other card games. I don't have any hobbies outside my work, and don't have any outside exercise.

E. Are you active in any group? I mean, do you belong to some club or organization? Or do you arrange trips with people?

I. I used to, but not now. Some time ago I belonged to a number of societies such as the Chaffin Literary Society, the Mutual Improvement Society, and the Excelsior Society. I also join in the work now of the Triangle Club here.

The items in the socialization category are scored plus in fact, or by assumption, or irrelevance, to Item 103 inclusive except for Item 85. Item 88 receives plus F credit. Items 104 and beyond are scored minus. Item 103 is weak but is allowed by this E.

Summarizing this examination as a whole, we find all items scored plus in fact or by assumption, irrelevance, or plus F score to Item 60 inclusive. Items 61, 62 and 67 are minus, and other items plus to Item 74 inclusive. Items 75 and 77 are minus, and other items plus to Item 84 inclusive. Additional plus scores include Items 86 (±), 87, 88 (+F), 89, 90, 93, 94, 95, 97 to 103, 105 and 106. The basal score is therefore 60, with 35.5 additional points. This is a total score of 95.5, and yields an SA of 18.2, SQ 73. This actual score is below the lower limit of average adult normal performance (SA 20), but the interpretation of it in view of the special handicap of blindness is not the same as that which would apply for non-handicapped adults.

In evaluating this examination it appears extremely doubtful that Miss M. would pass any items above Item 107 even if not visually handicapped or not environmentally cloistered. It is highly probable, however, that except for the immediate and accumulated (conditioned) limitations due to her blindness she would successfully perform Items 61, 62, 67, 75, 77, 86, 92 and 96. This leaves only Items 85, 91, 104 and 107 unaccounted for. This E believes these four items are not seriously affected by the visual defect and only mildly so by environment. They appear to be the result of dispositional factors rather than the result of sensory or cultural limitations.

If we allow the eight items noted as "presumably would be passed except for the handicap" this increases the final score from 95.5 to 103 (i.e., 95.5 plus 7.5, since Item 86 changes from plus-minus to plus). This yields a "double-scoring" SA of 22.5, SQ 90 (by interpolation from the blank), or SA 22.0, SQ 88 (from the conversion table).

This SA 22 is in keeping with E's estimate of this S and confirms the general impression from the examination as a whole of low average ability (about − 1 SD). And this result conforms to other estimates of this S. Compared with the SA 18 obtained from the standard examination without allowing for the blindness, it shows a 4-year, or 20 per cent, handicap to her "normal" potential. The SQ 73 reflects the overall handicap found for blind subjects in general during the maturation period. The influence of environmental isolation is indeterminate but apparently rather negligible as inferred from the evidence. The indirect effects of the visual defect and environment on expressive intelligence are also undetermined.

This self-informing examination has not been checked against a standard examination, but would seem to be neither unduly favorable nor unfavorable to the S from speculative inferences. This E might have acted as I on the basis of his acquaintance with this S without material variation in evidence or result.

This last observation suggests an important caution. If the E is well acquainted with the S, he must be careful to avoid confusing his own role with that of the informant. He must not allow his fore-knowledge to embarrass the thoroughness and objectivity of the examination by pressing for information which he himself is already assured of. Nor should he assume or "fill in" the informant's responses with answers of his own. In practice the examiner is usually at a significant disadvantage in examining an S with whose attainments he is already familiar. He may, however, find it feasible to act as both examiner and informant in making armchair examinations by self-interrogation — a procedure which merely tends to systematize and objectify judgments arrived at by more general appraisal. With an independent informant all the double-scoring would have been based on the NO type of interview question rather than on E's own appraisal.

The student will note rather clearly from this illustration: (1) the general aura of judgment provoked by the examination as a whole; (2) the relative significance of different item-categories for evaluating the S and therefrom the influence of different handicaps or variables on the total analysis; (3) the practicability of objectively assuming scores for items not specifically considered because incorporated in other items, outgrown, or not relevant for various reasons; (4) the difference between aptitude vs. performance, (can vs. does, or maturity vs. competence); (5) the significance of substitutive performances; (6) the practicability of double-scoring for items affected by special handicaps or restricting circumstances; (7) the revealing of personality traits in modes of performances — and also (8) a qualitative aspect of the sex of the S. In sum, the holistic portrayal of the S reveals various impacts in respect to which the total numerical score may be evaluated in terms of the "clinical impression."

PART IV

STANDARDIZATION AND VALIDATION

Chapter 9. Normative Standardization

Chapter 10. Item Validation: Feeble-Minded Subjects

Chapter 11. Scale Validation: V.T.S. Subjects

9

Normative Standardization

> *"Nothing is more sure than the seasons,*
> *nothing more variable than the days."* — E. A. Kirkpatrick

Preliminary experimentation. In presenting the normative standardization of the Scale a resumé of the successive stages of progress illuminates the end result.

(1) A series of behavioral performances was formulated as a schedule of bio-social maturation in personal independence and social responsibility.

(2) These items were arranged in a presumptive order of difficulty on the basis of observation, evidence from scientific literature, experience with feeble-minded and other atypical groups, and preliminary clinical exploration.

(3) Although at first conceived in terms of age periods and categorical relationships these items were later considered as successive items of a point-scale.

(4) This series of items was employed in more extended experimentation, and the degree to which the criteria employed in the selection and formulation of items were satisfied was empirically determined from the data obtained.

(5) This resulted in a further revision of the series, the elimination of some items as unsuitable, and the introduction of substitute items.

(6) This preliminary revision of items was published as a "genetic scale" (Experimental Form A).

(7) Experimental Form A was then used for a more extended standardization, the results of which in year-scale divisions and categorical progression are presented herewith as Experimental Form B. This anticipates further revisions as experience and the accumulation of larger bodies of data may permit.

It seems unnecessary to review here the large amount of preliminary study and experimentation that preceded the publication of Experimental Form A. Nor does it seem advisable to compare the results from Form A with those from Form B. The following generalizations summarize these transitions.

Analytic work with Form A revealed certain inadequacies in the selection and definition of items. Some were found to spread over too wide a range of ages, that is, the maturation curves were too "flat." On other items adequate factual information could not readily be obtained, or if obtainable was difficult to evaluate. Some items were found to be too seriously affected by specific environmental circumstances. Certain areas of maturation were found to be inadequately sampled. The formulation of adult items proved especially unsatisfactory. A few items showed marked sex differences. The items designed to reveal the social capitalization of education required complete reformulation.

Consequently, a thorough revision of all the items and their definitions was made with the assistance of the entire staff of The Vineland Laboratory in seminar discussion, including significantly different points of view on the theoretical assumptions and practical uses of the Scale. This seminar was continued for a period of several months for the purpose of examining the principles of scale construction as contained in the extensive literature of the past three decades, and in relation to continuous experimental work on these and similar problems undertaken by The Vineland Laboratory over this same period of years.

The revision of Form A to Form B yielded a sufficiently stable instrument for more extensive work. Both Form A and Form B were released to the professional public as early as practicable rather than awaiting the improvements from further research. This was done in advance of an elaborated presentation of the method so as to obtain wider experience on the difficulties that might be encountered and the modifications necessary as indicated by experimental use of the Scale under a wide variety of conditions and with widely different problems. We are indebted to many individuals for helpful criticisms and data which have been incorporated as far as practicable in the present volume.

During this period a condensed manual was published for Form A, and another for Form B. These were designed to present the major details of the method in abbreviated form without the elaboration necessary for a complete understanding of the method, its background, experimental justification, and uses.

The data for the normative standardization of Form B were gathered by a single examiner, Katherine Preston Bradway, after intimate acquaintance with the method following a period of several months of preliminary application with both normal and feeble-minded subjects. As the collection of data proceeded, almost daily conferences were held on the difficulties encountered, and such immediate modifications of the method were made as could be done without violation of the data. New items were devised as the work progressed, and comprehensive notes were kept of all changes in procedure and item definition. This required discarding such data as could not usefully be retained in view of these modifications.

Wide-range examining was employed in order that complete growth curves for each item could be constructed on actual data without the necessity of assuming presumptive success or failure at the "tails" of the maturation periods. Detailed notes were recorded for each item in each examination so as to permit later rescoring in case the formulation or definition of the item or the standard of scoring might subsequently be modified. In short, the experimental work was conducted in such a manner that when all data were collected it was possible to rescore each item of each examination in a standard objective manner. Or if this could not satisfactorily be done, such records were discarded and others obtained in their place. The categorical sequence of items materially facilitated these efforts.

*Normative environmental scene.** The normative subjects were obtained by house to house examining in the Greater Vineland area. This district includes the borough of Vineland and the surrounding Landis Township situated in the north-east corner of Cumberland County in southern New Jersey. The area as a whole affords a progressive semi-rural environment with business, shopping, and recreational proximity to metropolitan Philadelphia forty miles north and the seashore resorts between Atlantic City and Cape May forty miles east and south.

Vineland Borough is an enterprising business-residential town with a population of about 7,500 situated in the center of Landis Township. One hundred fifty miles south of New York City, and an equal distance north of Washington, it is in close contact with virile cultural and economic centers. In the heart of important modern agricultural developments it is also within easy reach of nationally popular seashore resorts.

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*As of 1935. Borough and Township have since consolidated.

Landis Township, a politically distinct residential-rural district, has a population of approximately eighteen thousand. Numerous small industries are scattered in this area, but the major enterprises consist of poultry husbandry, horticulture, garden farming, and dairying.

The better-known industrial products of the area include commercial, laboratory and art glassware; a wide variety of clothing manufacture; paper specialties, building materials, food processing; and the usual trade and merchandising pursuits. Agriculturally the area is the second-largest poultry center in this country; produces large quantities of frozen and dessicated perishable foodstuffs; commands first-grade markets for peaches, apples, sweet potatoes, peppers; enjoys a national reputation for producing bulbs and especially dahlia roots.

The major development of the area dates from about 1860. The initial population was recruited from New England. Subsequently, thrifty farmers of Northern Italian derivation, merchants and agriculturists of Western European Jewish extraction, and retired "city folks," including a few celebrities, settled here.

This then is a cosmopolitan community composed mainly of about one-third early American stock, another third of Northern Italian extraction, and a final third of Jewish and Russian derivation. Neither great wealth nor dire poverty is represented, but rather a fair average of self-respect, thrift, enterprise, progressiveness and stability of purpose. Perhaps to a greater extent than most communities this one reflects a wide range of environmental versatility without marked concentration on any special phase, and a spread of population differences without particular peaks.

The physical area comprises seventy-six square miles of territory with a moderate climate resembling that of the south central Atlantic States at their "best" seasons. Hard-surfaced roads of extensive mileage crisscross the district and afford ready access to larger population centers. The local claim to being "The Hub of Sunny Southern Jersey" is witnessed by the number and variety of national retail establishments. Other objective evidence attests varied environmental facilities. Church interest is high in spirit and broad in scope, with forty houses of worship representing twenty-five respected denominations. Likewise, more than fifty social and fraternal organizations serve the needs of modern community progress for both sexes at all ages.

Although politically separate, Vineland Borough and Landis Township constitute a single public-school district. Public education is well served at high standards in twenty-eight public school buildings and one large accredited public high school. The latter offers varied curricula in classical, technical, business, agricultral, and trade-vocational education. Two hundred teachers serve five thousand pupils. In addition, fourteen Sisters teach 700 Catholic school pupils from pre-primary grade through high school. One opportunity school in Vineland Borough provides three special classes for mentally handicapped pupils, and the parochial school offers another. The district maintains one primary demonstration school in affiliation with the Glassboro State Teachers College (twenty miles north). Vineland has also served as a locus for important survey studies in educational sociology conducted by the University of Pennsylvania School of Education as well as by The Vineland Laboratory. The Vineland State School (with about 1500 mentally deficient women and girls) and The Vineland Training School (a private residential school with about 550 children and adults of both sexes) are located one mile east of Vineland Borough. A well-patronized Public Library and an active Historical Society materially extend these educational resources. A state institution for disabled veterans and their wives is near the center of the district.

Recreational facilities (parks, playgrounds, lakes, nearby seashore, Y.M.C.A., Boy Scouts, and so on) are ample and vigorously exploited. Respectable commercialized amusements, and wide opportunities for other forms of self-expression are not wanting. Public health is maintained on a high plane by numerous public and private agencies. A sixty-bed accredited hospital is augmented by various medical clinics (eye, ear, chest, orthopedic and so on) sponsored by Philadelphia specialists. The public spirit of the community is progressive and stimulating.

Lest this description of social area seem irrelevant, note that such an accounting is essential to the cultural evaluation of the normative population sample herein employed, and is specially pertinent because of its bearing on the Social Scale item performances from the standpoint of opportunity and stimulation. It would indeed be pertinent to expand this description by including other data on social-economic facilities such as are available in home and community evaluation score-cards, inventories, and like schedules. This technically more precise description is omitted lest it becloud rather than clarify the present abstract of data.

Selection of subjects. In obtaining normative subjects we decided to employ controlled samples, since the so-called random sample too often is not representative where successive subgroups of a population are limited in number. We also decided to use relatively small homogeneous samples which could be more intimately studied than larger heterogeneous groups. On the other hand, the subjects may be described as unselected except for the control pattern. Since the Scale is standardized on the basis of age progressions, the adequacy of the sample is not to be determined alone by the number of subjects in any particular group, but rather by the homogeneity of such groups. Moreover, it was not our purpose to accomplish a mass standardization but rather to make a controlled analysis of a few variables, the results of which might be used in more extensive later work.

In short, we are committed to the principle of progressive standardization with increasingly larger numbers of subjects as the method acquires further experimental stability. For this reason the present standardization is tentative rather than final. However, this work has been done with sufficient care so that Form B is reasonably adequate for practical purposes. It is unlikely that further standardization on a larger number of subjects will seriously modify this calibration of the items or these normative scores except as consequences of variation in procedures, in selection of subjects, and in weighted environmental variables. Obviously it is not practicable here to examine how representative the Vineland community may be of the country in general. It is possible, however, to describe the sample in such terms as will enable others to evaluate the selective influences which may affect other samples from other communities.

The size and character of the samples resorted to in the standardization and validation of measurement devices are currently unsettled issues. Our position herein is most simply conveyed in the following propositions:

1. The representation afforded by a particular sample is a function of the ultimate purposes for which its statistical parameters are relevant. A "provincial" sample does not afford national references, nor a national sample world reference, unless or until so extended. Too narrow a sample will not represent extensive coverage, and too broad a sample will obscure local reference.

2. Careful description and definition of controlled small samples are essential to the initial demonstration of sampling

statistics. Only by inference are generalizations to larger samples justified until the effects of additional sampling variables are adequately demonstrated.

3. The generalized validity of the initial demonstration may be "tested" by employing the method with progressively larger samples, but the statistical variations so obtained may be considered as significant only if it is desirable to take into account the extension of the variables beyond mere sampling size.

4. The inclusion of additional variables (e.g., geographic vagaries, educational levels, socio-economic weighting, race, color, etc.) may increase representativeness at the expense of situational reference. Sampling statistics have therefore two major points of reference, the local versus the more universal scene. This requires allowance for recognized variables of known influence in either extension or restriction of representative populations.

5. The validity of sampling statistics is a function of N (the number of subjects) in relation to variance. As N increases, variance (other things equal) tends to stabilize. Conversely, as representative statistics stabilize, the practicable size of N decreases in some corresponding degree.

6. Hence consistency and stability of data are desirable statistical goals, while definitiveness and description of variables are necessary reference goals. *And these major goals may not ignore the nature of the data and the ultimate uses to which the resulting norms are put.*

7. As applied to the present study, we rely more on the *data trends* than on the detailed proofs. And we generalize the results only within the range of the variables evaluated. We leave to others the extensions of sampling size and representation. But we would plead that in such extensions a fair respect be accorded the pioneering aspect of their antecedents.

These principles are implicitly and explicitly exemplified in theory and in practice in recent contributions (e.g., Johnson, 1948; Kinsey, 1948; Marks, 1947; McNemar, 1940; Toops, 1948).

Following such considerations we finally employed 10 male and 10 female white subjects at each life age from birth to 30 years of age. This gives 20 subjects equally distributed by sex and age for 31 year-groups, or a total of 620 subjects. This does not provide a standardization throughout the total adult life span, but does cover the maturational period to its prime, exclusive of late adult increments or of senescent deterioration as the involutional phase of maturation. As will appear later, the average normal adult maturation "ceiling" is empirically apparent at approximately 25 years. The extension of data to 30 years (and to a scattered sample between 30 and 60 years not here reported) reveals no significant increases in total average scores for successive life ages. It is, of course, desirable that the Scale be normatized for the remaining years of the total life span, but this problem is left for later work.

We have made an exploratory study of social maturation and involution in the later years employing normal subjects between LA's 70-80 and feeble-minded subjects between LA's 50-70 (p. 484). Retrospective scores were obtained at LA's 50 and 25 for the normal subjects, and at 10-year intervals for the feeble-minded subjects. It may be noted here that the evaluation of results obtained after LA 30 must reckon analytically with the influences of selection with special reference to differential longevity.

The life-age groupings are based on ages reported as of last birthday, verified by calculation from reported birth dates. This is a more common, and for many reasons more desirable, practice than to employ age to the nearest birthday, although in either plan such differences in procedure can readily be allowed for.

The major selective influence affecting the S is the social-economic status of his family. There is much evidence to warrant judging this by the single criterion of paternal occupation. For this purpose we employed the Minnesota Occupational Scale (Bingham, 1937), adjusting exceptional instances to temporal exigencies. For each life-age group and for both sexes an approximation to the normal curve of occupational distribution was sought, with modes between occupational groups 3 and 4. Obviously it was not practicable to obtain more than a crudely normal curve of occupational distribution for each age group based on only 20 subjects, but a fair approximation to this desirability was obtained.

The selection of subjects is further illuminated by other evidence such as attained school grade, parental school grade, and the occupational classification of the S himself in the upper age periods (if gainfully employed). Only white subjects were used normatively, but an application study for Negro subjects is abstracted in Chapter 13 (p. 497). Nationality derivations were about equally distributed according to community representation. (A further study of this variable yielded no statistically significant differences). Children with grave educational retardation, mental deficiency, or limiting physical handicaps were excluded. In short the sample was held within reasonably average limits approximating a normal distribution between about the 5 and 95-percentile range of community representation. Intelligence test ratings of the subjects were not employed since these were available only for a limited number of individuals, and were not always psychometrically comparable.

TABLE 1

DESCRIPTION OF NORMATIVE SUBJECTS

N=10 male and 10 female subjects at each life-age interval; T = 620

1 Mean LA	2 S's Mean Schooling	3 S's Mean Occ. Class	4 F's Mean Occ. Class	5 F's Mean Schooling	6 M's Mean Schooling	7 Mean SQ
.5	–	–	3.3	12.2	11.2	80
1.6	–	–	3.9	8.9	9.0	103
2.4	–	–	3.8	10.7	9.3	112
3.5	–	–	3.7	10.0	10.3	100
4.5	–	–	3.7	10.0	9.9	98
5.5	–	–	3.5	11.4	10.5	103
6.5	.8	–	3.6	9.7	9.4	101
7.5	1.9	–	3.6	9.8	9.7	101
8.4	2.8	–	3.6	10.6	10.6	101
9.5	3.5	–	3.8	8.9	8.8	101
10.5	4.9	–	3.8	10.4	9.9	99
11.5	5.6	–	3.7	9.0	8.2	104
12.5	6.5	–	3.5	9.6	9.8	102
13.5	7.3	–	3.4	10.2	10.3	102
14.4	8.6	–	3.7	9.3	8.4	103
15.5	9.5	–	3.4	10.0	8.7	95
16.5	10.2	–	3.7	9.8	9.1	101
17.6	11.1	4.3	3.3	8.8	8.3	101
18.4	11.0	4.1	3.8	7.8	8.0	98
19.5	11.6	4.6	3.2	10.3	9.4	106
20.5	10.8	4.3	4.1	8.1	8.5	105
21.5	11.0	3.8	4.1	8.7	8.8	102
22.5	11.3	4.0	3.5	9.4	9.3	101
23.6	11.3	3.6	3.9	8.8	8.5	100
24.5	9.9	4.0	4.0	7.8	8.2	98
25.5	11.1	3.7	3.9	8.8	9.1	97
26.3	10.1	3.9	3.8	8.9	8.4	97
27.5	10.2	4.1	4.3	7.3	8.0	101
28.3	10.0	3.8	3.9	8.5	8.0	99
29.5	10.0	3.7	3.9	7.6	6.6	97
30.5	10.7	3.7	3.6	9.2	7.8	103

Preschool subjects were obtained through parents of child-study groups, but care was taken to avoid superior selection; the majority of subjects were not the actual children of these groups but many were obtained through them. Children of grammar-school age were obtained by consulting public-school records in cooperation with teachers and principals; favorable extra-school contacts were made through school officers and parent-teacher groups. Subjects of high school age were obtained partly through the schools and partly through independent social connections in order to avoid school selection and the selective influence of school mortality in the adolescent age period. Adult subjects were obtained through these and other direct means, as siblings or parents otherwise contacted through casual or occupational acquaintances, through families already reached in other phases of the work, or by house-to-house visitation.

Only those subjects were retained who satisfied the criteria of selection already noted and whose informants cooperated readily and agreeably.

A summary description of the subjects employed in the normative standardization (Form B) is presented in Table 1. Since the calculations for the sexes separately showed no appreciable sex differences their tabulation here is omitted.

The mean life ages (first column) for the successive age intervals of Table 1 show only slight divergence from the midpoints of the intervals.

The subjects' own mean attained school grade (second column) progresses fairly evenly from LA 6 to LA 16 years, fluctuating thereafter between 10th and 11th school grades.

This average ceiling of school grade attainment probably is higher than the implied useful employment of schooling. Note, for example, that the mean ages for communication items 84, 90 and 91 are respectively 11.58, 14.95, and 15.35 years. Note also that the age progression below this ceiling fails to show school retardation, whereas some statistics indicate about 40 per cent failure in the first school grade and about 1.2 years of life age per grade of school progress, or an average cumulative retardation of about 2 years at the completion of grammar school. Nor do these data reflect the normal expectation of school mortality during grammar school and at entrance to high school. Hence these means reflect either (a) some superior selection of subjects, or (b) the effects of automatic promotions. No attempt is made here to compare these data with school attainment throughout this country because of (a) the contradictions and inadequacies of such data as are available, (b) the variations in school standards and practices, and (c) the relation of schooling to economic status. Broadly speaking these data show a normal middle-class sampling without inclusion of marked extremes. More significantly they reveal a correlative absence of scholastic selectivity in the age range above LA 16, the years in which most standardized schedules are biased by educational selection due to omission of subjects who have ceased to attend school.

The mean occupational class of the subjects themselves (third column) appears at LA 17; after LA 20 it hovers between 3.6 and 4.1, the means below LA 21 reflecting early occupational instability. These means compare closely with corresponding paternal occupational class (after LA 19).

The mean paternal occupational class (fourth column) fluctuates between 3.2 and 4.3. This again reflects a substantially average middle-class sample with comparatively small divergence from age to age. It was not feasible to consider maternal occupational class because of wide variations in employment of women prior to marriage and loss of non-domestic occupation thereafter. This maternal factor is revealed instead through school attainment.

Paternal mean attained school grade (fifth column) ranges from 7.3 to 12.2, with four means at 7, nine at 8, eight at 9, eight at 10, one at 11 and one at 12. Paternal mid-schooling is therefore about 9.4, whereas subjects' schooling (after LA 16) is about 11.0. This difference most probably reveals differences in school practices, standards, and opportunities as between parent and child.

Maternal schooling (sixth column) is slightly below paternal attainment. The range is from means of 6.6 to 11.2, with mid-schooling of about 9.1. There is, however, a fairly close parallelism.

The final column of Table 1 shows the mean SQ for each age group. As used here it suggests minor selective variability of the age samples in relation to scale standardization. Since this anticipates other considerations the discussion is presented later.

Collection of data. In view of the somewhat intimate nature of the interview examination, it was of course necessary that the examiner be socially acceptable for establishing suitable rapport with the informants. This was facilitated by the high regard in which representatives of The Training School are held locally, and was further strengthened through relations with parents and young people who provided introductions to other parents, or through assistance from teachers, public-school officials, public-school nurses, social work relations, and occupational relations. The examiner was specially successful in establishing social rapport, without which the value of the present data might have been materially reduced. Contacts with informants were arranged as far as practicable by appointment, or by return visit, or were promoted by friendly visitation.

The examinations were conducted as unobtrusively as possible. The examiner, skilled in the method and familiar with the instructions and definitions, was specifically careful to obtain adequate data for the scoring and rescoring of each item. This detailed information was recorded amply on the record blanks, but final scoring was not completed at the time of the examination to avoid embarrassment with the informant.

All records were reviewed for scoring purposes at the end of the day or soon thereafter, and were subsequently rescored in the light of the final formulation and definition of items decided upon as a result of the normative examining experience. In the case of inadequate or incomplete records, follow-up visitations were made.

In the course of this field work the examiner established a favorable reputation as to personality and discretion within the community or neighborhood. As the "word went around" certain apprehensions had to be allayed and caution fostered as one informant compared notes with another. Many informants volunteered or were suggested for examination, and the examiner was frequently solicited to conduct examinations "as a favor." This was done as far as practicable to promote social support of the work, even if such examinations were not employed for standardization purposes. Actually, many examinations of adult subjects over 30 years of age were obtained in this way.

All data employed in the final normative standardization were based on standard examinations (p. 267) by a single examiner (p. 349). The informant was usually the S's mother, but was sometimes (especially for adult S's) a near relative or a close friend intimately acquainted with the S. No data were included from other sources or special procedures such as supplementary informants, observed performance, case history records, self-informing, or pooled data (p. 291).

Treatment of data. As the scoring of each record blank was completed, the data were entered on summation sheets according to age and sex, with notations for social-economic status and school achievement, showing for each S the distribution of item scores. From these data ogive maturation curves were plotted for each item for both sexes by graphing cumulatively the successive per cents of passes on each item for each age group.

The Thomson adaptation of the Hardy summation method (Bradway, 1938; Brown and Thomson, 1925; Thomson, 1926) provides a device by which the entire growth curve may be employed for the calculation of the mean (M) and the standard deviation (SD) of such data. This mean may be precisely determined by a direct summation of the per cents of passes from zero to 100 per cent. This sum is divided by 100 and subtracted from the end value of the age group corresponding to the highest 100 per cent.

Expressed as a formula:

$$M = A + 1 - \frac{\Sigma\%}{100}, \text{ or } M = A + 1 - d$$

where M is the mean age value of the total growth curve, A is the highest age interval taken at its beginning (A + 1 = top end of this interval*), and d is the sum of the per cents from zero to 100 per cent divided by 100 (A being the highest age group considered for 100 per cent of successes and zero being taken theoretically from birth).

The standard deviation of the ogive is calculated (Thomson, 1926) from the formula:

$$SD = \sqrt{2S - d \quad (1 + d) - 0.083}$$

where S is the *sum of the progressively accumulated* per cents divided by 100, d is the sum of the non-accumulated per cents divided by 100, and 0.083 is Sheppard's correction.

These formulas are based on the assumption (Brown and Thomson, 1925) that the ogive of successive per cents of passes at progressive unitary age intervals represents the accrued scores of a single group of subjects re-examined year after year (although in fact each year is represented by different individuals as equivalent proxies).

As an example, consider Item 44, Relates experiences. The combined data for 10 boys and 10 girls at each successive age are as follows (sustained at 0 per cent below life age 1 and at 100 per cent above life age 6):

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* If A is taken at the mid-interval, the formula becomes $M = A + .5 - d$.

Age	%	Acc. %
1	0	0
2	25	25
3	75	100
4	90	190
5	95	285
6	100	385
Σ	385	985

$$A + 1 = \text{Top age limit} = 6 + 1 = 7.0$$

$$d = \frac{385}{100} = 3.85$$

$$S = \frac{985}{100} = 9.85$$

$$M = A + 1 - d = 7.0 - 3.85 = 3.15 \text{ years}$$

$$SD = \sqrt{2S - d\ (1 + d) - .083}$$

$$= \sqrt{19.70 - 3.85 - 14.823 - .083} = \sqrt{.94} = .97$$

Some comments are pertinent to the ultimate calculations by this method.

1. For some items the maturation data yield but one percentage point between 0 and 100 per cent of passes. The calculation of SD for such a "distribution" is limited to the SD of a percentage ($SD^2 = PQ \div N$, where P is per cent of passes, Q is 1 — P, and N is number of subjects). Since this represents the error of a sample rather than the error of a distribution these calculations have not been included. Likewise the calculations for the SE of the difference between means for items where one or both means are derived from single percentages have been omitted, as well as the corresponding computations for the critical ratio (CR).

2. It will be noted that the Thomson formula for SD includes Sheppard's correction. This tends to reduce the size of SD by about 4 per cent when SD = 1.00 and by progressively smaller amount as SD increases. Its use has been included in all the relevant calculations for item analysis because of the relatively small number of intervals comprehended by the maturation curves (Peters and Van Voorhis, 1940).

3. The value of N corresponding to 100 per cent for the Thomson calculation of means and SD's is N = 10 for each sex, and N = 20 for the sexes combined. Fisher's criteria for small samples (Fisher, 1934) have been employed using n = 9 (or N — 1) for the sexes separately in calculating the standard error

of the mean from the standard deviation of the distribution. Fisher's Table of *t*, entering at n = 18, has been used in evaluating the CR of the sex differences.

4. Some misgivings arise from the fact that although theoretically N = 10 for each sex, and N = 20 for the sexes combined, as unit samples yielding "accrued scores," actually several "proxy" samples have been employed for each item. The actual number of different subjects therefore is 10, for each sex, times the number of successive age periods between 0 and 100 per cent of passes inclusive. This varies for different items (Chapter 6), ranging between 30 and 60 different S's (for the sexes separately) for Items 1 to 40, between 50 and 80 S's for Items 41 to 60, between 50 and 110 for Items 61 to 80, and between 50 and 140 for Items 81 to 101 (ignoring the number of subjects used prior to the first stable zero or after the first stable 100 per cent of passes per item). In other words, the minimum significant item range is 3 years and the maximum is 14 years with 10 different S's of each sex at each year. This introduces a variable theoretical factor which cannot readily be estimated, except through the evidence on the successive age samples available in Table 1.

5. While all calculations were made with care and repeatedly checked, some errors may yet remain discoverable. Minor errors in the second decimals, or beyond the third significant figures, are attributable to approximations of numbers and may be ignored since the nature of the data does not warrant more precise calculation. Arithmetic niceties sometimes only obscure experimental crudities.

6. The Thomson method of scaling items ceases for the present data with Item 101 because the subsequent items do not attain or sustain 100 per cent of passes. The subsequent curves must therefore be considered as incomplete and as not permitting precise calculation of means or SD's. This does not invalidate their use, since it is desirable to include top items which are passed by but few subjects, and the exact scaling of such items is not a critical matter.

There are several methods of resolving this dilemma, but the results are unsatisfactory and the methods cannot be applied beyond Item 105 because thenceforward the items do not attain or sustain even 50 per cent of passes for both sexes. It may be of some interest, however, to comment on some methods of estimating item central tendencies, partly because of their bearing on this type of material in general as well as on these items in particular. All such unconventionally derived values are indicated by question marks (?). Where even such derivations are impracticable the central tendency values are omitted.

a. The items may be scaled in rank order of difficulty without reference to their central tendency values. This is accomplished by summing the per cents of passes for all subjects at all ages. This is essentially the Thomson method, but when applied to curves which do not attain or sustain a stable 100 per cent of passes exact means cannot be calculated from such incomplete data.

In employing this and other methods one must reckon with the possibility that the subjects above a certain age limit may represent only differences of sampling rather than differences of genuine maturation with increasing age. Many considerations indicate that social maturity as measured by the items of this scale and the Scale as a whole reaches an average adult ceiling at approximately 25 years. Hence the distribution of item successes and of total scores beyond 25 years may be considered as representing only variations in the final age samples. It is evident, however, from the maturation curves that on some items, especially when considered by sex, there is a tendency toward some maturation in the period between 25 and 30 years.

The scaling of items by this method gives the rank order of difficulty as retained in the final scale for all subjects to life age 30 inclusive for items above 101. This means in effect that the ranking of items beyond Item 101 is padded by the equivalent of 6N (per year) in view of the evidence that the subjects above 25.0 years represent variable samples of an essentially constant population. This, however, seems plausibly warranted on the ground of "anchoring" the upper limits of the Scale. However, if the items above Item 101 are ranked on the basis of subjects up to LA 25.0, then there are only several slight shifts in the ranks, the most significant of which is the displacement of Item 107 to a rank position of 104. No other items are displaced by more than one rank.

b. Another method of scaling is to consider the 50-percentile of passes as median performance and to employ medians in place of means as expressions of central tendency. This is legitimate because throughout the items as a whole the standard medians closely approximate the means, and the item curves are only negligibly skewed. The dilemma here is that only a few items beyond Item 101 attain median performance, and some of these as well as some lower items show several 50-percentile points due to irregularities in the curves, or what are sometimes called "awkward distributions." A way out of this dilemma is to average the age values corresponding to the number of points at which the rises and falls of the curve cross the 50-percentile. The results of this treatment are unsatisfactory and are applicable to only a few items. These instances are indicated by a question mark (?) following such median values.

c. Another method of treatment is to calculate an approximate mean from the central fragment of the maturation curve. It will be recalled that the Thomson method is only a substitute for averaging the age values corresponding to the percentage points on the ogive. Empirical treatment of complete curves confirms this. A modification of this method would be to average the age values corresponding to equal percentage distances on the curve from both directions departing from the 50-percentile or median. Thus the age values can be averaged for percentiles 40, 50 and 60; or for 30, 40, 50, 60 and 70; or for any other fragment of the curve permitted by the data where the curve extends appreciably beyond the 50-percentile. This is most readily obtained by the use of deciles, but a somewhat "smoothed" result may be attained by the use of vigintiles. This method corresponds to the procedure at one time advocated by Thurstone, but uses more points on the curve. Those interested may test this method empirically by applying it to successively broader fragments of those curves which are complete, thus determining the extent to which the central tendency of the curve is modified by the use of different areas of the distribution.

This method yields fairly satisfactory results in terms of approximate means based on fragmentary estimation. However, in the present material these results are applicable to only 4 items (Items 102 to 105) since the other items do not afford sufficient data for such estimation.

7. In the scaling of items, one minor liberty has been taken with the data. A few of the item ogives show slight departures from 100 per cent of passes beyond the age period at which the first 100 per cent appears. Wherever this has been due to not more than one subject of either sex at a given year, the calculations have been based on this first "stable" 100 per cent. Since it seems fair to assume that such subsequently minor deviations might be due to errors of sampling or of measurement, we have considered it proper to assume that the maturation mean for a given item might be calculated from zero to

the first stable 100 per cent of passes inclusive, and the maturation curves have been considered complete at such points.

NORMATIVE RESULTS*

The Thomson method makes it possible to obtain statistically accurate mean age norms for each item, with corresponding standard deviations. a virtue not readily inherent in other methods of treating this type of data. This facilitates the precise evaluation of item sex differences, discriminative power, validity, point scale calibration, year placement, influence of special handicaps, and so on. The results of this treatment in terms of item sex differences and of normative LA versus feeble-minded SA comparisons have been generally anticipated in Chapter 6. We may now proceed to more refined item analyses and to the treatment of total scores.

Use of the Thomson method resolves many problems of scale construction. Yet so far as we can learn it has not previously been employed in any instance of year-scale or other system of item calibration. We consider the present demonstration of its unique advantages a significant by-product of critical value to the work here reported.

Standard calculations for item medians, Q's (interquartile deviations) and skewness were made but have been omitted (except for item medians in Chapter 6) as not significantly relevant. Such statistics are readily calculable from the item graphs. The limitations of space, data and purpose restrict the presentation of other statistical refinements to the immediate necessities for clear exposition.

Likewise various pilot studies on different techniques of item analysis were undertaken but ultimately set aside as not sufficiently illuminating in the present report. The original data are available for such treatment if desired.

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* The author is indebted to Katherine Preston Bradway for much of the plan and most of the original calculations, and to Kathryn Fitch Deacon and Florence C. Matlack for the subsequent reorganization and recalculation of all data. The author assumes responsibility for the final formulation of the argument and materials. Acknowledgment is also made to other associates for aid and counsel and especially to Dr. Charles C. Peters for assurances on the underlying mathematical principles involved. It is hoped that this plan of treatment may be considered useful beyond its immediate purposes as applicable to other investigations of similar nature. The complete data are available at The Vineland Laboratory.

Normative item sex differences. The normative scaling of items by the Thomson method for the sexes separately and combined is presented in Table 2. This table shows in successive columns from left to right: (1) the item numbers in order of scaled progression (see p. 51 for item captions), (2) the mean item-age-norms for male subjects, (3) the corresponding SD's of the item ogives, (4) the mean item-age-norms for female subjects, (5) the corresponding SD's, (6) the mean sex differences between mean item-age-norms, (7) the SE's (standard errors) of these differences, and (8) the CR's of the sex differences. There follow (9) the mean item-age-norms for the sexes combined, (10) the corresponding SD's of the item ogives, and (11) the SD's (column 10) divided by the means (column 9), or the decimal coefficients of variation (sexes combined).

Inspection of Table 2 yields the following self-evident generalizations; more elaborate generalizations may be derived from inspection of the item graphs in Chapter 6.

1. The item norms progress rather smoothly from .25 years to 20.75 years for both sexes. Thomson norms are not calculable beyond Item 101 because the maturation ogives do not attain or sustain 100 per cent of passes. Approximated norms for items beyond 101 are given in Chapter 6.

2. The norms and SD's show only minor sex differences. The *amounts* of mean difference are small, and are not statistically significant for any item. The largest difference is 1.60 and the proportional difference is rarely above 20 per cent. The CR's fall below 2.0 for all items. (For detailed comment and graphs by categories see Chapter 6).

3. The *direction* of sex differences favors the female subjects for 47 items, the male for 46 items, and neither sex for 8 items. The males mature earlier on 20 items and the females on 13 between Items 1 and 40; the females excel on 29 items and the males on 10 between Items 41 and 80; the males are advanced on 16 items and the females on 5 between Items 81 and 101. (Note that higher mean age norm means later maturation.) By categories the direction of superior sex difference is as follows: Self-Help General, M 8, F 3; Self-Help Eating, M 5, F 4; Self-Help Dressing, M 1, F 12; Locomotion, M 7, F 3; Occupation, M 9, F 6; Communication, M 3, F 11; Self-Direction, M 7, F 4; Socialization, M 6, F 4. The influence of sex differences on total scores is negligible (see p. 372).

TABLE 2

ITEM STANDARDIZATION FOR NORMAL SUBJECTS

1 Item	2 Male Mean	3 Male SD	4 Female Mean	5 Female SD	6 M—F Diff.	7 SE Diff.	8 CR	9 Total Mean	10 Total SD	11 $\frac{SD}{M}$
1	.25	—	.25	—	0	—	—	.25	—	—
2	.20	—	.30	—	—.10	—	—	.25	—	—
3	.30	—	.30	—	0	—	—	.30	—	—
4	.30	—	.30	—	0	—	—	.30	—	—
5	.30	—	.30	—	0	—	—	.30	—	—
6	.30	—	.40	—	—.10	—	—	.35	—	—
7	.45	—	.40	—	.05	—	—	.43	—	—
8	.40	—	.50	—	—.10	—	—	.45	—	—
9	.50	—	.60	—	—.10	—	—	.55	—	—
10	.60	—	.50	—	.10	—	—	.55	—	—
11	.60	—	.50	—	.10	—	—	.55	—	—
12	.80	—	.45	—	.35	—	—	.63	—	—
13	.50	—	.80	—	—.30	—	—	.65	—	—
14	.75	.55	.65	—	.10	—	—	.70	.48	.69
15	.80	—	.90	—	—.10	—	—	.85	—	—
16	.90	.46	.90	.64	0	.26	0	.90	.55	.61
17	.90	.33	.95	.25	—.05	.14	.36	.93	.29	.31
18	1.00	—	1.05	—	—.05	—	—	1.03	—	—
19	1.00	.34	1.20	—	—.20	—	—	1.10	.33	.30
20	1.10	—	1.10	—	0	—	—	1.10	—	—
21	1.20	.82	1.05	.61	.15	.34	.44	1.13	.73	.65
22	1.25	—	1.15	—	.10	—	—	1.20	—	—
23	1.25	—	1.35	—	—.10	—	—	1.30	—	—
24	1.25	—	1.50	—	—.25	—	—	1.38	—	—
25	1.20	.42	1.60	—	—.40	—	—	1.40	.45	.32
26	1.30	—	1.55	—	—.25	—	—	1.43	—	—
27	1.55	—	1.45	.52	.10	—	—	1.50	.47	.31
28	1.30	—	1.75	—	—.45	—	—	1.53	—	—
29	1.60	.75	1.65	.74	—.05	.35	.14	1.63	.73	.45
30	1.60	.75	1.70	.73	—.10	.35	.29	1.65	.74	.45
31	1.80	—	1.60	—	.20	—	—	1.70	—	—
32	1.60	—	1.90	.46	—.30	—	—	1.75	.45	.26
33	1.80	—	1.90	.46	—.10	—	—	1.85	.38	.21
34	2.20	.53	1.70	—	.50	—	—	1.95	.52	.27
35	2.20	.42	1.75	.71	.45	.28	1.61	1.98	.63	.32
36	1.90	.78	2.15	.86	—.25	.39	.64	2.03	.83	.41
37	2.20	.88	1.90	.71	.30	.38	.79	2.05	.82	.41
38	2.35	.92	2.35	.80	0	.41	0	2.35	.86	.37
39	2.30	—	2.55	.61	—.25	—	—	2.43	.51	.21
40	2.75	.90	2.45	.99	.30	.45	.67	2.60	.95	.37
41	2.85	1.12	2.85	.86	0	.47	0	2.85	1.00	.35
42	3.10	1.10	2.60	.75	.50	.44	1.14	2.85	.97	.34
43	2.95	1.17	2.80	.94	.15	.50	.30	2.88	1.06	.37
44	3.25	1.14	3.05	.75	.20	.46	.43	3.15	.97	.31
45	3.10	1.05	3.35	1.07	—.25	.50	.50	3.23	1.07	.33
46	3.40	.68	3.15	1.12	.25	.44	.57	3.28	.93	.28
47	3.60	.87	3.10	.90	.50	.42	1.19	3.35	.92	.27
48	3.70	1.11	3.40	.93	.30	.48	.63	3.55	1.03	.29
49	3.80	.99	3.70	1.24	.10	.53	.19	3.75	1.12	.30

TABLE 2 (cont'd)

1 Item	2 Male Mean	3 Male SD	4 Female Mean	5 Female SD	6 M—F Diff.	7 SE Diff.	8 CR	9 Total Mean	10 Total SD	11 $\frac{SD}{M}$
50	4.30	1.56	3.35	.97	.95	.61	1.56	3.83	1.38	.36
51	4.00	1.35	3.65	.97	.35	.55	.64	3.83	1.19	.31
52	5.05	1.66	4.25	1.10	.80	.66	1.21	4.65	1.46	.31
53	4.95	1.03	4.45	1.08	.50	.50	1.00	4.70	1.09	.23
54	5.35	1.50	4.25	.84	1.10	.57	1.93	4.80	1.33	.28
55	4.85	.80	5.40	.87	—.55	.39	1.41	5.13	.88	.17
56	5.05	.61	5.20	.69	—.15	.31	.48	5.13	.65	.13
57	5.05	1.29	5.20	1.47	—.15	.65	.23	5.13	1.39	.27
58	5.40	.87	5.05	.61	.35	.35	1.00	5.23	.77	.15
59	5.55	.98	5.70	.96	—.15	.46	.33	5.63	.98	.17
60	5.90	1.00	5.75	1.23	.15	.53	.28	5.83	1.12	.19
61	5.65	.86	6.00	1.06	—.35	.46	.76	5.83	.98	.17
62	6.10	2.26	5.95	2.18	.15	1.05	.14	6.03	2.24	.37
63	6.30	.73	6.00	.85	.30	.37	.81	6.15	.80	.13
64	6.65	1.91	5.80	1.41	.85	.79	1.08	6.23	1.73	.28
65	7.35	1.46	6.15	2.18	1.20	.88	1.37	6.75	1.95	.29
66	7.40	1.40	7.15	1.16	.25	.61	.41	7.28	1.29	.18
67	8.35	1.91	7.75	1.95	.60	.91	.66	8.05	1.95	.24
68	7.80	1.44	8.75	2.00	—.95	.82	1.16	8.28	1.81	.22
69	8.05	1.40	8.50	1.66	—.45	.72	.63	8.28	1.55	.19
70	8.80	1.75	8.10	1.00	.70	.67	1.05	8.45	1.47	.17
71	7.95	1.66	9.05	1.72	—1.10	.80	1.38	8.50	1.78	.21
72	8.95	1.72	8.10	2.03	.85	.89	.96	8.53	1.93	.23
73	8.80	1.44	8.30	1.42	.50	.67	.75	8.55	1.45	.17
74	9.30	1.28	8.40	1.91	.90	.77	1.17	8.85	1.69	.19
75	9.25	1.41	8.80	1.75	.45	.75	.60	9.03	1.61	.18
76	9.50	1.37	9.25	1.31	.25	.63	.40	9.38	1.34	.14
77	9.50	1.54	9.35	1.56	.15	.73	.21	9.43	1.55	.16
78	9.95	1.40	9.30	1.65	.65	.72	.90	9.63	1.57	.16
79	10.40	1.80	10.20	2.34	.20	.98	.20	10.30	2.09	.20
80	10.10	2.03	11.70	2.46	—1.60	1.06	1.51	10.90	2.39	.22
81	10.75	2.59	11.65	3.67	—.90	1.50	.60	11.20	3.21	.29
82	11.20	3.36	11.30	3.23	—.10	1.55	.06	11.25	3.29	.29
83	10.75	2.33	12.15	2.91	—1.40	1.24	1.13	11.45	2.72	.24
84	11.75	1.55	11.40	1.69	.35	.76	.46	11.58	1.63	.14
85	11.70	2.49	12.90	3.03	—1.20	1.31	.92	12.30	2.84	.23
86	12.20	1.73	12.55	2.23	—.35	.94	.37	12.38	2.00	.16
87	13.05	2.32	12.95	2.27	.10	1.08	.09	13.00	2.29	.18
88	13.40	2.44	14.80	2.25	—1.40	1.11	1.26	14.10	2.44	.17
89	14.50	2.68	14.80	1.97	—.30	1.11	.27	14.65	2.36	.16
90	15.15	2.33	14.75	2.81	.40	1.22	.33	14.95	2.59	.17
91	14.75	2.51	15.95	3.06	—1.20	1.32	.91	15.35	2.86	.19
92	15.05	2.14	16.65	1.96	—1.60	.97	1.65	15.85	2.20	.14
93	16.00	2.31	16.25	1.52	—.25	.92	.27	16.13	1.96	.12
94	16.35	1.94	16.70	1.77	—.35	.88	.40	16.53	1.86	.11
95	17.60	1.86	17.15	1.39	.45	.77	.58	17.37	1.66	.10
96	17.75	1.52	18.35	1.36	—.60	.68	.88	18.05	1.47	.08
97	18.40	1.72	18.55	1.75	—.15	.82	.18	18.48	1.71	.09
98	18.65	1.02	18.40	1.36	.25	.57	.44	18.53	1.20	.06
99	18.25	1.64	19.15	2.46	—.90	.99	.91	18.70	2.14	.11
100	19.30	1.71	20.05	1.99	—.75	.88	.85	19.68	1.89	.10
101	20.30	1.71	20.75	2.07	—.45	.90	.50	20.53	1.90	.09

4. The *variability* of the item norms by sex is also statistically negligible. This is most readily apparent by comparing the coefficients of variation ($V = \frac{SD \times 100}{M}$) by sex. The range (calculations omitted) of these coefficients for male subjects is from $V = 5$ to $V = 41$ (plus one item at $V = 68$) with the median at $V = 20$ and the interval mode at $V = 10\text{-}19$ (42 per cent of 71 items). The range for female subjects is from $V = 7$ to $V = 45$ (plus one item at $V = 58$ and another at $V = 71$) with the median at $V = 22$ and interval modes at $V = 10\text{-}19$ and $V = 20\text{-}29$ (69 per cent of 71 items). The males show higher coefficients on 32 of 71 items (the largest V-difference being 10); the females are higher on 35 of 71 items with a maximum V-difference of 22. The standard precautions for the use of V should be observed in evaluating these calculations (Peters and Van Voorhis, 1940).

It should be recalled that the items were both designed and culled so as to avoid sex differences. Hence the above material only reflects the extent to which this was achieved. It is impracticable here to present material on the items which were discarded because of significant sex differences. *But we should like to emphasize that the present data constitute a significant contribution to research on maturation in relation to sex beyond their immediate relevance to the construction of this scale.*

Total item scaling. The evidence on scaling of items for the sexes combined is found in the last three columns of Table 2 and in the item graphs in Chapter 6. The progression of the total mean item-age-norms is evident from the first of these three columns (column 9). The SD's (column 10) increase somewhat irregularly to a maximum of 3.29 (Item 82) and then *decrease* irregularly to a low of 1.20 (Item 98). These SD's may be considered as reflecting the "pitches" of the maturation ogives and hence as indicating the discriminative power of the items in terms of life age.

The coefficients of variation decrease from $V = 69$ to $V = 6$, with the median at $V = 23$ and an interval mode (37 per cent of 79 items) at $V = 10\text{-}19$. All but three of these coefficients are below $V = 50$.

Further evidence on item values is presented in later sections on year placement, validity, diagnostic value, and the influence of special handicaps.

Total scores. The total point score for each subject was

TABLE 3

DISTRIBUTION OF TOTAL SCORES BY LIFE-AGE FOR NORMAL SUBJECTS*

N=20 at each LA; T=620

LA	SCORE 0	.1-5.0	5.1	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	Med. Score	Q
0-.9	4	3	4	5	4																				8.9	6.2
1					2	5	7	5	1																27.2	4.0
2								3	5	9	3														41.2	3.5
3									2	5	7	6													47.2	3.9
4										1	6	7	6												52.2	3.8
5												2	10	8											59.1	2.7
6													2	12	5	1									63.4	2.4
7													2	5	7	5	1								67.2	4.0
8														2	5	10	3								71.6	3.0
9																12	4	4							74.3	3.4
10																6	6	8							78.4	4.5
11																	2	14	4						83.0	1.8
12																		9	11						85.6	2.5
13																		5	12	3					87.2	2.1
14																		3	10	7					88.6	2.7
15																		2	12	6					88.4	4.0
16																			6	10	4				92.1	2.3
17																			2	7	10	1			95.6	3.0
18																				9	9	2			95.6	2.8
19																					11	7	2		99.6	1.7
20																					6	13	1		101.6	2.2
21																					4	14	2		102.2	1.8
22																						16	4		103.2	1.6
23																						13	7		103.9	2.8
24																						12	8		104.3	2.4
25																						9	11		105.6	2.5
26																						10	10		105.1	2.5
27																						7	13		106.3	2.3
28																						10	9	1	105.1	2.7
29																					1	11	7	1	104.2	2.7
30																					1	4	14	1	106.9	1.8
N	4	3	4	5	6	5	7	8	8	15	16	15	20	27	17	34	16	45	57	42	46	129	88	3		
Med. LA	.5	.5	.5	.5	.8	1.5	1.5	1.8	2.6	2.8	3.7	4.2	5.4	6.5	7.5	9.1	10.0	11.8	14.2	16.5	18.7					

* *Grouped data*

obtained by adding the item scores as provided in the general instructions (Chapter 7). Scatter diagrams of these scores in relation to life age were tabulated for the sexes separately and combined.

The distributions for the sexes combined are presented in Table 3 by 5-point score intervals for each age. The median total-point-scores (grouped data) for each life age interval are entered in the second column from the right. The median life ages for each 5-point score interval are in the bottom row. (Median life ages are not computed for point scores above 99 because of the indeterminate "tailing" of such scores).

We have elsewhere (Doll, 1947b) noted the common error of converse interpretation in employing such a table. Since the purpose of such a table is to estimate age-equivalent from score rather than score from age, the use of median ages for given score intervals is the logical procedure. But this interposes other difficulties of sampling, distribution and estimation which are usually difficult to resolve.

Moreover, the error of converse inference, for these data, is relatively minor in amount (see Figure I) even though logically reprehensible. Hence we follow here the conventional practice of reasoning from age to score while apparently doing the reverse. Our data do permit the correct rather than the incorrect practice because of (a) the constant number of subjects at all ages, and (b) the controlled nature of the age samples. But this is unusual, and in the interest of uniform comparisons with other scales we have followed customary practice.

Inspection of Table 3 and Figure I shows the point scores progressing by decreasing increments up to LA 25 years (see footnote, Table 5). From 25 years forward the progression is substantially stationary, or reaches its average adult ceiling, except for slight divergences plausibly attributable to sampling errors. Continued progression is somewhat uneven by small amounts between 20 and 25 years. Hence this tail of the distribution requires some smoothing and approximation. For practical purposes we may safely consider the average adult ceiling as 25.0 years, equivalent to a total score of 106 item points (see p. 375).

Other data on total scores are presented in Table 4 which shows from left to right (1) the successive mean life age intervals, (2) the corresponding median point scores (from ungrouped data), (3) the Q's of these distributions, (4) the mean point scores (ungrouped data) for each age, (5) the SD's

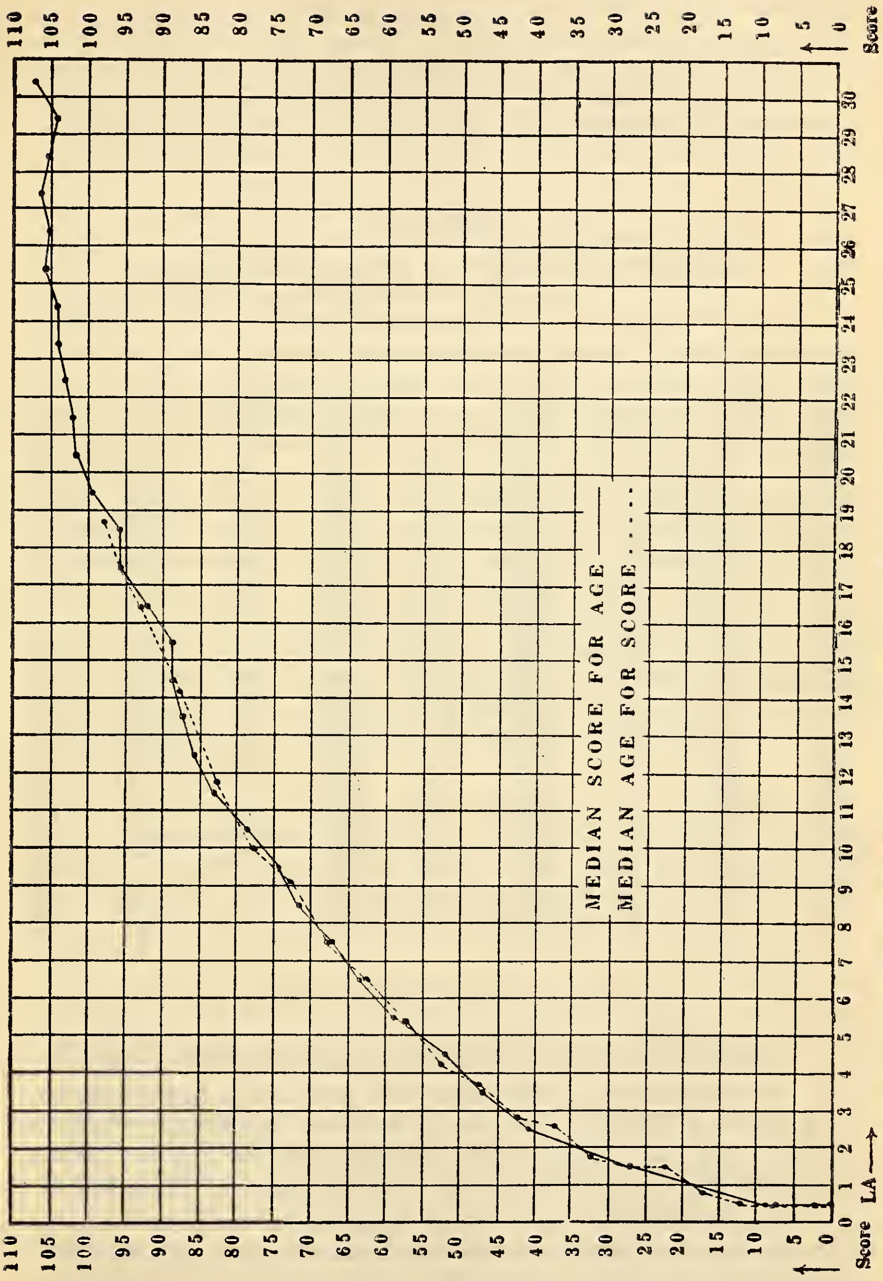

Figure I. Comparison of Median LA by Point Scores versus Median Point Scores by LA (from Table 3).

of these distributions, (6) the interval scores interpolated from the mid-age means to the ends of the age intervals, and (7) the year-scale interval scores. There follow (8) the differences between the means for male and female subjects (original calculations omitted) and (9) the CR's of these differences.

TABLE 4

STANDARDIZATION OF TOTAL SCORES FOR NORMAL SUBJECTS*

N=10 male and 10 female subjects at each life-age interval; T=620

1 Mean LA	2 Median Score	3 Q	4 Mean Score	5 SD	6 Interval End Score	7 Year-Scale Intervals	8 M—F Mean Diff.	9 Sex CR
.5	8.8	6.2	8.5	6.3	17.2	17	.16	.06
1.6	27.1	4.0	27.8	4.9	34.3	34	1.60	.71
2.4	41.1	3.5	40.8	4.5	43.8	44	—2.75	1.37
3.5	47.1	3.9	46.8	4.5	49.5	50	.65	.31
4.5	52.1	3.8	52.2	4.3	55.7	56	—2.80	1.49
5.5	59.0	2.7	59.2	3.2	61.3	61	—.10	.07
6.5	63.3	2.4	63.4	3.2	65.5	65	—3.20	2.58
7.5	67.1	4.0	67.5	4.4	69.6	70	—.30	.14
8.4	71.5	3.0	71.6	4.4	73.7	74	—3.35	1.75
9.5	74.2	3.4	75.7	3.8	77.2	77	1.25	.71
10.5	78.3	4.5	78.6	4.0	80.5	81	.45	.24
11.5	82.9	1.8	83.3	2.3	84.2	84	.60	.57
12.5	85.5	2.5	85.0	2.4	86.0	—	2.05	2.14
13.5	87.1	2.1	86.9	2.7	87.9	—	3.55	3.62
14.4	88.5	2.7	88.9	2.6	88.8	89	.15	.12
15.5	88.3	4.0	88.6	2.5	90.5	—	1.05	1.21
16.5	92.0	2.3	92.4	3.3	93.7	—	2.40	1.61
17.6	95.5	3.0	95.0	3.2	95.5	95	—1.60	1.13
18.4	95.5	2.8	95.9	3.1	98.3	—	.15	.10
19.5	99.5	1.7	100.6	3.2	101.4	101	2.25	1.62
20.5	101.5	2.2	102.1	2.5	102.4	—	1.40	1.27
21.5	102.1	1.8	102.7	2.3	103.2	—	1.40	1.37
22.5	103.1	1.6	103.7	1.9	104.1	—	—.40	.45
23.6	103.8	2.8	104.5	1.9	104.8	—	—1.85	2.47
24.5	104.2	2.4	105.0	2.1	105.2	105	—1.25	1.32
25.5	105.5	2.5	105.3	3.4	105.3	—	—1.40	1.06
26.3	105.0	2.5	105.3	1.9	105.8	—	—.90	1.06
27.5	106.1	2.3	106.2	2.1	106.0	—	.35	.36
28.3	105.0	2.7	105.8	2.4	105.5	—	—.75	.68
29.5	104.1	2.7	105.2	2.7	106.0	—	—2.05	1.78
30.5	106.8	1.8	106.7	2.3	—	—	—.85	.81

* *Ungrouped data*

The following observations are apparent from Table 4:

a. The mean sex differences are practically negligible, being of small amounts (column 8) and low significance (column 9) at nearly all LA intervals. Consequently the LA sex means may properly be combined as representative of both sexes.

b. The total means (column 4) and total medians (column 2) are closely similar at all LA intervals, and the distributions are markedly symmetrical (arrays and calculations omitted).

c. The Q's (column 3) and SD's (column 5) are consistently low and closely comparable.

d. The total means (column 4) and medians (column 2 and Figure I) progress smoothly and with favorable discrimination (see footnote, Table 5). The progressive differences in the mean end-scores (column 6) are for the most part larger than the corresponding SD's up to LA 12.0. Thereafter the combined-interval differences (column 7) are also larger than the corresponding SD's. Hence the overlap in the year-scale intervals is generally less than 1 SD, showing a high degree of LA separation.

Year scale. The year-scale arrangement of items was achieved by combining the data for item norms and total point scores, ignoring the minor sex differences. The item sequences are based on the mean item-age-norms (sexes combined) arranged as a calibrated point scale (column 9, Table 2). The year-scale intervals were determined by interpolating the mean total scores by age to the *ends* of the age-intervals; for example, the mean score for LA 10.5 = 78.6 and the score range for LA 10.0-10.9 = 77.3-80.5 inclusive. As the differences between the LA means decreased, becoming larger in relation to their SD's and thus reducing the discriminative values of the scores in relation to age, the year-group intervals were spread accordingly. This tends to equalize the number of items per discriminative interval and reflects the decreasing rate of maturation with age.

The result yields a year scale (p. 51) with twelve one-year intervals from birth to LA 11.9, two three-year intervals from LA 12.0 to LA 17.9, one two-year interval from LA 18.0 to 19.9, and one five-year interval for LA 20.0 to 24.9, with an indeterminate interval for LA 25 and above.

The need for systematic organization of test items in a scale of this sort will be apparent to workers in the field of scale construction (Doll, 1947a). An immediate desirability is that the items should be rather evenly spaced from one to the next rather than piled up at some points with gaps at others. Likewise the need for systematic standardization of point scores with indications of discriminative differentiation is self-evident. What is not usually so clear is that the conversion of a calibrated point scale to a year scale introduces no essential modification of scale construction and interpretation, but accomplishes only a practically intelligible and useful grouping of items and scores into a different system. This facilitates the understanding of the year placements of test items for both lay and professional purposes and affords a meaningful display of the spread of the scale in relation to its units. The year-scale formulation of a scale should therefore be considered from the standpoint of convenience for revealing its significance and use. For example, in testing a child of a given age one knows what items are likely to be appropriate for that age. Or in using particular items one immediately understands the age range at which they normatively apply. Likewise in assessing the total score one sees its meaning at a glance or can readily calculate its year value by direct interpolation without necessary reference to a point-scale conversion table.

Ideally, the item-age-norms should fall within the year-groups to which they are ultimately allocated in the final scale. This is expecting a good deal and poses a criterion not yet required by others in such work. Actually, few items in this scale fail to satisfy this desirability and these by very small amounts (see Table 2). The most serious exceptions are at Year VII-VIII where four of the five items fall between mean age-norms of 8.05 to 8.45. But most such displacements are no greater than the standard errors of their means, hence no attempt has been made to alter the items so as to avoid the embarrassment. The largest single displacement is for Item 70. The mean age-norm for this item is 8.45 years whereas the item falls at the end of Year VII-VIII, or a discrepancy of .45 years. But the standard error of the mean for this item is .34, which is nearly equal to the amount of displacement (Bradway, 1938).

SA and SQ scores. The progression of items by mean age-norm order of difficulty and their separation into year-groups is consolidated on the standard record blank (see p. 51). Here the item numbers correspond to total point scores from which it is feasible by a simple process of interpolation (p. 289) to convert point scores to social age (SA) score equivalents. To obviate this necessity Table A is provided (p. 290) showing these conversion equivalents. This affords a convenient means of translating point scores in terms of age. *The usual precautions attending such manipulations should be thoughtfully observed.* This conversion transforms the logarithmic type of point-score progression to a simple straight-line type of age-equivalent progression. Neither of these progressions is in terms of equal or absolute units and those employing this, like other year scales, should be alert to the pitfalls involved (Boring, 1920; Doll, 1947b).

The average of the mean scores for the six age periods from LA 25 to 30 inclusive is 105.8. And the average of the corresponding SD's is 2.47. Considering ±3SD as comprehending the approximate limits of the normal curve of distribution, the total range of adult scores would fall between scores of 105.8±7.4, or from 98.4 to 113.2. The empirical distribution (ungrouped data) is actually from 98.5 to 111.0 with a median of 106.2, Q = 1.80.

In round numbers, the average adult ceiling may be taken as SA 25.0 years at a score of 106, and the adult range as between scores of 101 to 111 inclusive (actually one S above LA 25 scored 98.5 and another 99.5). Since the LA distributions above LA 19 are not materially skewed, we may extrapolate these scores from the median score of 106 (SA 25) to a lower limit of 101 (SA 20) and an upper limit of 111 (SA 30), or 1 point for each SA from 20 to 30. The maximum adult SQ thus becomes 120 (SA 30 divided by SA 25, the average adult ceiling). These approximations involve only slight liberties and are in close accord with the empirical data as well as in conformity with other evidence (cf. Tables 4 and 5A).

Other evidence reveals some slight progression of individual adult scores up to LA 50 with decline thereafter. The amounts are small and show marked individual differences. There is seldom an individual increment of more than 2 points, or the equivalent of 2 years beyond the score attained prior to LA 30. Decline in scores becomes noticeable after LA about 70 (see p. 484).

We have previously noted (p. 306) that prime attainment is reached earlier in life than is generally acknowledged. And we have elsewhere commented on the relation of SA to senescence (see index), and have presented both clinical and group data.

This relation of capacity to achievement, and their respective evolution and involution, is well formulated (with supporting evidence and relevant references) by Foulds (1949)* as follows:

"From Figs. 1 and 2, it is seen that a person's learning capacity normally reaches its maximum shortly after the age of 13 yr., and from about the age of 30 yr. onwards declines slowly, but with remarkable uniformity. It is also seen that a person's acquired information approximates to its maximum at about this age, and remains relatively constant from then on, at least in the sense that the amount of general information acquired is about equal to that forgotten. Between the late twenties and the early forties, a man normally possesses both the greatest knowledge and clarity of thinking. Before this, a man's capacity for clear thinking is at its maximum, but he lacks the breadth of knowledge necessary to put his ideas into practice effectively. By the early forties, his knowledge is usually reaching maturity, but his capacity to understand fresh methods of thinking has begun to decline. In addition it was found that he took longer to grasp new methods of working and, in coping with fresh problems, relied more and more upon existing knowledge."

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* Acknowledgment is made to the author and the American Journal of Psychology (q. v. for Figs. 1 and 2 referred to) for permission to quote.

The SA scores may be converted to social quotient scores (SQ) by dividing SA × 100 by LA. This corresponds to the derivation of IQ from MA. But those employing such procedures should not fail to observe the precautions and errors which commonly attend such practice.

TABLE 5

STANDARDIZATION OF SA AND SQ SCORES FOR NORMAL SUBJECTS

N=10 male and 10 female subjects at each life-age interval; T=620

Mean LA	Mean SA†	SD of SA†	Mean SQ	SD of SQ
.5	.5	.38	80	50
.7*	.7*	.23*	110*	21*
1.6	1.6	.32	103	17
2.4	2.7	.53	112	17
3.5	3.5	.67	100	16
4.5	4.4	.73	98	16
5.5	5.7	.67	103	12
6.5	6.6	.69	101	11
7.5	7.5	1.02	101	12
8.4	8.5	1.09	101	12
9.5	9.6	1.08	101	11
10.5	10.4	1.18	99	11
11.5	11.9	.89	104	7
12.5	12.7	1.13	102	9
13.5	13.8	1.48	102	11
14.4	14.9	1.45	103	10
15.5	14.7‡	1.39	95	8
16.5	16.6	1.59	101	9
17.6	17.8	1.39	101	8
18.4	18.1	1.22	98	6
19.5	20.6	2.26	106	12
20.5	21.5	1.82	105	9
21.5	21.9	1.86	102	9
22.5	22.7	1.90	101	8
23.6	23.5	1.82	100	8
24.5	24.0	2.08	98	8
25.5	24.3	2.86	97	11
26.3	24.3	1.86	97	8
27.5	25.2	2.07	101	8
28.3	24.8	2.39	99	10
29.5	24.3	2.54	97	10
30.5	25.8	2.15	103	9

†*For medians and Q's of SA and SQ (see Tables 5A and 5B).*

**Based on 14 subjects from LA 0.3 to 0.9 inclusive (see p. 377).*

‡*This discrepancy in mean SA progression (see also Table 3 and Table 4) is unresolved by examination of the data for errors of calculation, marked differences in sampling, or hypothetical speculation. Whether this is a significant datum or an unexplained artifact is not plausibly clear.*

The results of converting total point scores to SA and SQ scores for the normative population (sexes combined) are presented in Table 5. Calculations for the sexes separately showed no significant differences. The quotient scores are calculated from original (ungrouped) data. The following observations are apparent from the table:

a. The mean SA's closely approximate the corresponding mean LA's up to LA 24 years (see footnote, Table 5). Thereafter they fluctuate about SA 24.8±.5 years.

b. The SD's of SA progress roughly parallel to the corresponding mean SA's. The coefficients of variation (calculations omitted) approximate $V = 20$ for LA's 1 to 4, and thereafter hover between $V = 7$ to $V = 14$.

c. The mean SQ's center around 100±5, with a marked low at LA 0-1 and marked high at LA 2-3. The variations from $SQ = 100$ emphasize the areas at which manipulations of item scoring, or perhaps improved sampling, might have improved the normative standardization.

d. The LA progression of SD's of SQ reveals four major areas of dissimilar variability. At LA 0-1 the SD is 50, at LA's 1-4 it is 16-17, at LA's 5-10 it is 11-12, and from LA 11 forward it fluctuates inconsistently between 6 and 12, with modes at 8 and 9 and a mean of 9.

The SD of SQ for LA 0-1 is unsatisfactory and calls for explanation. One subject of each sex was of LA below 0.1 and one additional subject of each sex was below LA 0.2. None of these four subjects passed any item of the scale. Hence their SA's were 0. This did not materially affect the mean SA for LA 0-1. The SQ's for these four subjects were also 0 and this did seriously affect the mean SQ and the corresponding SD. Moreover, one additional subject of each sex at LA 0.3 attained SQ of 15 and 45 respectively, thus still further reducing the mean SQ and enlarging the SD. The other 14 subjects at LA 0-1 achieved adequate scores yielding SQ's of 63 to 140. The norms for these 14 subjects are given in the second line of Table 5.

The quotient scores of very young S's are very sensitive to the probable error of measurement and should be interpreted accordingly.

If it is desired to reduce SQ's to a common adult basis for purposes of comparison or for predicting adult SA (assuming average constancy of SQ as a logical corollary of the standardization principles), then recourse may be had to the for-

TABLE 5A

DISTRIBUTION OF SA BY LA FOR NORMAL SUBJECTS

N=20 at each LA; T=620

	SOCIAL AGE																																
LA	0-.9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Med. SA	Q
0-.9	18	2																														.6	.28
1		18	2																													1.6	.28
2		2	14	3	1																											2.6	.35
3			5	9	6																											3.6	.59
4			1	5	9	5																										4.4	.60
5					2	10	8																									5.8	.54
6						4	9	6	1																							6.7	.61
7						2	4	8	4	2																						7.5	.75
8							2	5	6	4	3																					8.5	.95
9									8	4	5	3																				9.5	.98
10									3	4	6	5	2																			10.5	.95
11											4	6	8	2																		12.0	.73
12											1	4	6	7	1	1																12.8	.79
13												3	3	6	3	2	3															13.7	1.17
14													3	2	4	5	5	1														15.2	1.10
15													3	4	3	6	2	2														15.0	1.17
16														1	3	3	3	5	4	1												17.0	1.34
17																2	4	2	8	3	1											18.3	1.06
18																	4	4	6	4	2											18.3	1.00
19																			3	8	2	0	4	1	1	0	0	1				19.9	1.63
20																			2	4	1	3	6	1	2	1						22.0	1.54
21																			1	3	0	4	7	2	2	0	1					22.3	1.38
22																				1	3	3	2	4	4	2	1					23.3	1.58
23																					2	3	1	4	7	1	1	1				24.0	1.36
24																					1	1	4	5	2	3	2	1	1			23.8	1.46
25																					2	3	4	0	0	3	3	1	3	1		25.3	2.50
26																						2	4	3	2	4	3	2				24.5	1.63
27																							2	4	2	4	3	2	2	1		25.5	1.63
28																							5	5	0	3	3	1	1	1	1	24.0	1.84
29																				1	0	0	5	5	1	2	3	2	0	0	1	23.8	1.77
30																				1	0	0	0	1	3	4	4	5	1	0	1	26.3	1.20
N	18	22	22	17	18	21	23	19	22	14	19	21	25	22	14	19	21	14	24	26	14	19	44	35	26	27	24	16	8	3	3		

mula $SQ_A = SQ_X + 9\left(\frac{SQ_O - SQ_X}{SD_X}\right)$; where SQ_A is the obtained SQ converted to average adult variability, SQ_X is the mean SQ for the life age corresponding to SQ_O, 9 is the mean adult SD of SQ, SQ_O is the obtained SQ under consideration, and SD_X is the SD of SQ_X. This procedure is desirable when SQ's for different LA's are pooled, compared or predicted on the principle of average constancy, assuming that the major variations in SD of SQ represent significant trends rather than artifacts of measurement or sampling (Doll, 1937).

LA-SA distributions. The distributions of SA in relation to LA are detailed in Table 5A. The arrays are fairly symmetrical for most LA's and show essentially straight-line progression up to LA 19. Thereafter the distributions are more wide-spread, somewhat skewed, and less positively correlated with LA. Medians above LA 18 progress somewhat unevenly as the average adult ceiling is approached, reaching SA 25 at LA 25 and fluctuating irregularly without sustained increase or decrease thereafter. Hence maturation during this period is materially obscured by individual differences.

TABLE 5B

DISTRIBUTION OF SQ BY LA FOR NORMAL SUBJECTS

N=20 at each LA except .09; T=614

LA	SOCIAL QUOTIENT 61-70	71-75	76	81	86	91	96	101	106	111	116	121	126	131	136	141	Med. SQ	Q
*0-.9	1				2		3			2	2			3	1		114	18
1	1		2		1	2	5		3	1	2	2			1		100	11
2			1		1	1	4		2	4	1		2	2		2	112	15
3		1		3	3	3	1	1	3	1	1	2			1		96	12
4	1	2		1	3	2	2	1	2	4	1	1					99	12
5			1	1	2	2	1	2	5	4	2						107	9
6			1		2	3	5	1	4	2	1	1					100	8
7		1		1	1	4	3	3	2	3		1	1				101	8
8			1		4	1	4	3	4	1		2					101	11
9				2	1	6	3		1	5		2					98	10
10				3	3	1	3	2	4	3	1						101	10
11						2	6	3	4	5							104	6
12				1	2	3	3	3	4	2	2						103	8
13				1	2	3	3	4	2	1	3	1					102	8
14				1	2	2	2	5	3	3	1	1					104	8
15			1	3	3	3	4	4	1	1							96	7
16				1	4	1	3	4	3	4							102	9
17					2	4	2	6	5		1						103	6
18					3	5	6	2	4								98	5
19						1	8	4		4	1		1			1	102	8
20					1	1	5	3	6	1	2	1					106	6
21					3	1	5	4	2	4		1					102	7
22					3	3	3	4	4	3							102	7
23				1	2	3	3	8	1	1	1						102	5
24					4	6	3	3	2	1	1						96	6
25				4	5		3	3	1	3	1						98	10
26				2	4	3	3	5	3								98	7
27					2	4	6	3	2	2	1						99	6
28					5	5	2	2	3	1	2						96	8
29			1		5	5	1	3	4		1						95	8
30			1			1	5	4	7	1	1						105	5
N	3	4	9	25	75	81	110	90	91	67	29	15	4	5	3	3	101	8
Ogive	.5	1.1	2.6	6.7	19	32	50	65	80	90	95	97.5	98.2	99.0	99.5	100		

*Based on 14 subjects (see p. 377).

LA-SQ distributions. Similarly the distributions of SQ in relation to LA are detailed in Table 5B. Here the median SQ progressions center about SQ = 100, while variability of SQ tends to decrease as LA increases. The variability in terms of Q is less marked and less consistent than in terms of SD (Table 5) due to the broken arrays and the loss of extreme deviations.

Absolute scaling. The material does not permit absolute scaling because of the unequal number of items per discriminative interval and the unequal distribution of items from different categories at different levels of maturity. From other considerations the direction and rate of social maturation appear to change with age and this scale reflects these mutations. However, we have calculated the discriminative values of successive scores by successive age intervals and these computations are fairly satisfactory up to LA 20, ranging from CR's of 10.6 to 3.5 for LA's below 8, and CR's of 4.8 to 2.3 (with two exceptions) between LA 8 and LA 19 inclusive. Between LA's 20-25 inclusive the CR's fall below 1.8. These data have been taken into account in grouping the year-intervals of the final scale. Interpolations between these intervals may be interpreted accordingly.

Nor have we attempted to employ other methods of expressing results such as standard scores or mental units or the personal constant. We must assume that the reader concerned with such interests will be familiar with the problems at issue. We have, however, endeavored to supply ample data carefully selected from the whole of our treatment within the limits of publication practicabilities. Our treatment, while falling short of some logical desirabilities and statistical niceties (Boring, 1920), has a compensating practical virtue of simplicity without material loss by omitting the more involved computations. A good example of the merits and procedures of such more refined analysis is found in David Wechsler's "Measurement of Adult Intelligence" (1944).

Reliability. Systematic data for the evaluation of test-retest reliability are reported in the section on results for feeble-minded subjects (Chapter 11). Reliability by the split-half method has not been estimated, on the ground that this method yields only a measure of the consistency of item scaling, which has already been discussed. Other estimates of reliability are to be found in the results from growth studies of normal and feeble-minded subjects re-examined annually, semi-annually and intermittently (p. 460). Further data have been gathered in the monthly re-examinations of several infant subjects over a protracted period (p. 473). Incidental evidence is available in numerous group studies and in longitudinal case studies, as well as in the consistency of the total results of such studies (Chapters 13 and 14). Other data already gathered await publication, such as (a) growth studies of normal and feeble-minded subjects over a period of eight years, (b) application studies of Negro, blind, and psychotic subjects, (c) biographical studies, (d) normal and feeble-minded identical twins, fraternal twins and siblings.

These investigations reveal separately and in sum a high degree of reliability for the method without which such studies could not yield consistent returns. They correspondingly indicate a relatively low probable error of measurement.

This is to be expected from several considerations. First, the method calls for report on customary or habitual overt behavior rather than *ad hoc* test performance. Second, the method requires explicit exploration of evidence which if unsatisfied leads to declaring the examination inadequate or incomplete. Hence there are only two main variables—the adequacy of the informant and the skill of the examiner. And since the examiner is required to insure adequacy of report, this reduces the variability of the examination essentially to the personal equation of the examiner.

These and other aspects of reliability were specifically considered in the application study on the inheritance of social competence (see p. 466) where such variables were considered as familial stock, environment, literacy, social change, remote subjects, special handicaps, deterioration and juvenility. The interested reader will refer to the original discussion. Evidence is also offered indicating high reliability for a single examiner employing different informants for the same subjects without appreciable time-interval between examinations (p. 543). Further presumption of reliability may be inferred from the relatively high discriminative values of item and total scores.

Validity. The principal evidence on validity is presented in the section on results with feeble-minded subjects. For normal subjects it will be recalled that at the close of each examination the informant was asked to estimate the S's social maturity in terms of the social competence of persons in general of the same age and sex as the subject. These estimates were to some extent influenced by the aura of the examination itself, by the informant's lay knowledge of human aptitudes, by modesty or sometimes pride regarding the S, by a tendency to employ some single categorical estimate rather than an overall estimate, and by the general evasion "I guess he's about average." At best these estimates could not be considered sufficiently sound or exact to warrant serious use, since they clustered too closely around the S's actual life age. Nevertheless the general approximation of estimates to measures affords some loose confirmation of validity. With feebleminded subjects certain specific errors of estimation are noted.

Another estimate of validity with normal subjects is to be found in the relation of scores to social-economic status as indicated by S's paternal occupational class, and by S's own occupational class (Table 7). But since this relationship is debatable as to cause versus effect, no emphasis is laid upon it here.

Types of scores. The Scale may also be considered from the standpoint of the practicability of establishing satisfactory item scores. This involves such issues as: (1) the ability of the examiner to elicit the necessary information, (2) the ability of the informant to supply adequate information, (3) the freedom of the person under examination to perform the items with regard for environmental opportunity or restraint, familial solicitude, or special circumstances, (4) the prejudices of the informant for or against the person under examination with resulting coloring of evidence, (5) the adequacy of the examiner in evaluating the information obtained, and so on. These issues have been satisfied by analyzing the types of scores assigned to the items in accordance with the manual of instructions. Similar concerns have been considered with reference to the use of the Scale in particular environmental situations, e.g., persons confined in institutions and special types of subjects either in or out of institutions such as the physically handicapped or the delinquent (Chapters 10-14).

The analysis of types of scores for the normative sample is presented in Table 10 (p. 409) accompanying a similar analysis for the item scores of institutionalized mentally deficient subjects. In addition to clear plus and clear minus scores Table 10 includes those designated as ± (emergent success), +NO (items on which successful performance would presumably have been evident except for lack of environmental opportunity or occasion), and +F (items previously successful but subsequently "lost" for various reasons other than loss of ability) (Chapter 7).

The normative data in Table 10 indicate that no significant difficulties were encountered on the part of the examiner in eliciting information, or on the part of the informant in providing the desired information, or on the part of the examiner in evaluating such information for assigning appropriate item scores. This is evident from the relatively small number of scores other than full plus or full minus.

Twelve +F scores for the total normative sample of 620 subjects were assigned to Item 106 (Performs skilled work). All but one of these scores were obtained by women between LA's 23-30. They are clearly related to early occupational success which was subsequently lost by reason of occupational retirement because of marriage or family circumstances. The one male subject had succeeded on this item during an interval between completing high school and entering college. This latter case illustrates the practicability of +F scores with subjects who for various reasons have temporarily discontinued item success. It is also evident that married women might resume skilled work for a variety of reasons.

Seven +F scores were assigned to Item 90 (Communicates by letter). Two of these were women subjects at LA 20 and LA 28, and 5 were male subjects between LA's 21-29. In all instances these were individuals who for various reasons had ceased to communicate by letter, although having previously done so, because of limited occasion as to correspondence. They were all capable of success on this item but did not habitually perform it at the time of the examination.

Six +F scores were assigned to Item 100 (Controls own major expenditures). Five of these were men and one was a woman, all between LA's 22-29. In some instances these men had lost earning power due to temporary circumstances. In 2 instances the +F score was assigned because of a joint domestic expenditure of funds. The one woman subject was married, with some domestic limitation of expenditure. It would seem that all of these items might properly have been scored full plus within the intent if not the letter of the item.

Other +F scores do not occur oftener than 3 instances for given items. Except for Item 81 these are all above Item 97 and are ascribable to personal circumstances.

The comparative absence of +NO scores reveals that item performance in the normative sample was not materially influenced by environmental restraint or lack of opportunity. The maximum number of +NO scores is 6 for Item 83 (Is left to care for self or others), with 4 such scores for Item 79 (Makes telephone calls), 3 for Item 100 (Controls own major expenditures), and 3 for Item 102 (Uses money providently). Speculative explanation for these scores is self-evident. Single +NO scores were assigned to other items as indicated in Table 10.

All but 24 items show some ± scores (emergent success). The number per item ranges from single instances to a maximum of 76 for Item 107 (Engages in beneficial recreation). The hierarchical incidence of such scores drops rapidly to 55 for Item 105 (Provides for future), 44 for Item 85 (Plays difficult games), 42 for Item 82 (Does simple creative work), 40 for Item 108 (Systematizes own work), and so on. The significance of these emergent scores is obviously related to the nature of the items in relation to their relative emergent nature.

One naturally expects such emergent scores to occur within the maturation range of item standardization and to be related to both the content and age location of the item. The comparative infrequency of ± scores for the majority of items further confirms the practicability of both the item and its scoring from the standpoint of habitually established behavior. It is to be recalled that this was one criterion in formulating the items. Only 14 items show more than 20 ± scores for the total normative sample, and 5 of these are at or above the normative adult ceiling.

"Scattering." One important feature of a measuring scale is the range of the scale required for effective examining. This is commonly referred to as the range of scatter over which additional points are added to the basal score. It reflects (a) discrepant performances (special abilities and disabilities), (b) artifacts of examining and scoring, (c) unequal differences between item means, and (d) unequal SD's of item means.

"Wide range" examining is always desirable for careful work in order to establish the upper and lower limits of idiosyncratic performance. In standardizing the present scale wide range examining was employed in order to fix beyond cavil the upper and lower limits of item maturation as well as total scores. This is facilitated by the categorical method of examination which requires a basic plus and a top minus for each category of items. This should provide at least one year of all plus scores and one year of all minus scores as a minimum standard of wide range examining. Actually no item score should be omitted if there is any reasonable doubt regarding its warranting a clear plus or minus score.

TABLE 6

"SCATTERING" ON POINT SCORES BY LIFE AGE FOR NORMAL SUBJECTS

N=20 at each LA; T=620

1	2	3	4	5	6	7	8	9	10
	Basal Score		Top Score		Active Range		Averages		
LA	Low	High	Low	High	Low	High	Base	Top	Range
0-.9	0	17	0	21	0	8	7.0	10.4	3.5
1	15	34	21	45	0	21	21.3	33.3	11.5
2	20	49	36	62	2	21	33.9	47.6	13.8
3	34	48	38	70	3	25	40.3	54.1	13.8
4	37	53	49	70	2	18	46.8	58.1	10.9
5	43	61	62	75	6	27	53.0	67.0	13.5
6	49	67	62	75	2	21	56.8	69.1	12.1
7	49	67	64	83	4	22	61.6	74.1	12.6
8	55	71	68	88	5	27	64.1	79.0	14.9
9	61	79	77	87	5	20	67.4	83.1	15.6
10	56	84	75	90	0	28	71.8	83.9	12.0
11	68	83	86	93	4	18	78.1	88.4	10.1
12	70	86	85	92	2	22	80.7	89.2	8.5
13	76	88	87	94	3	14	82.6	90.8	8.2
14	79	88	88	99	6	14	83.4	92.1	9.2
15	79	89	88	97	1	15	83.4	91.8	8.8
16	80	97	91	107	5	20	86.7	96.2	9.6
17	80	97	91	107	0	19	90.3	98.5	8.2
18	80	98	91	108	0	18	91.6	99.4	7.9
19	84	107	97	109	0	16	97.2	103.4	6.2
20	90	104	98	107	0	11	100.4	104.4	4.0
21	90	104	99	112	0	15	100.4	105.6	5.2
22	90	104	102	110	0	15	100.1	107.1	7.0
23	98	104	101	110	0	11	101.8	107.2	5.4
24	101	108	103	114	0	6	103.5	106.8	3.4
25	96	107	103	113	0	10	102.8	107.4	4.6
26	97	108	103	110	0	6	103.7	107.3	3.6
27	99	107	103	113	0	10	103.9	108.5	4.6
28	101	106	103	114	0	11	103.5	107.5	4.0
29	101	111	103	111	0	17	103.3	106.9	3.6
30	90	108	103	111	1	13	103.8	108.6	4.8

Table 6 presents the normative evidence on scattering for the sexes combined for each LA interval. In this table the successive columns show: (1) LA interval, (2) lowest individual basal score (that is, the highest plus score below which no minus score appears), (3) the highest individual basal score, (4) the lowest top item passed by any individual at a given age, (5) the highest top item so passed, (6) the lowest *range* of active items (that is, from the first minus to the last plus for each subject), (7) the highest range of active items, (8) the mean basal score for each age, (9) the mean top item passed at each age, and (10) the mean range of active items. (It will be noted that for each age the mean basal score plus one half the corresponding active range approximates the mean total scores given in Table 4, fourth column). Aside from confirming the consistency of the Scale with normal subjects this display of normative scattering becomes useful in the study of comparative populations and in conjunction with comparative item performances in differentiated types of subjects. We return to this in the analysis of the scatter performance of feeble-minded subjects (p. 412).

SQ and social-economic status. The relation of social maturity to social environment has been anticipated in earlier discussion. We may now renew that discussion in the light of the normative evidence. Additional evidence will be considered later from the results obtained with feeble-minded subjects and in the summaries of pertinent application studies. It will bear restating that this scale affords a standard method for investigating the relative influence of nature and nurture on social maturation.

TABLE 7

DISTRIBUTION OF SQ BY PATERNAL OCCUPATIONAL CLASS FOR NORMAL SUBJECTS

Pat. Occ. Class	SOCIAL QUOTIENT						N	Median SQ	Q	Med. Diff.	CR
	71	81	91	101	111	121					
LA's 1-10; $r=.31$, PE .04											
6			3				3				
5		8	18	4	2		32	95.4	4.4		
4		13	36	26	10	1	86	99.3	6.8	3.9	2.91
3		2	17	31	10	1	61	104.7	5.5	5.4	4.32
2		1	5	4	3		13				
1			1	3	1		5	Med. Occ. Class =4.24			
N		24	80	68	26	2	200				
LA'S 11-20; $r=.09$, PE .05											
6			3		1		4				
5		2	8	12			22				
4	1	10	27	28	13	1	80	101.7	7.5		
3		12	21	20	13	2	68	101.5	8.3	.2	.01
2		2	9	6	4	1	22				
1				2			2	Med. Occ. Class =4.10			
N	1	26	68	68	31	4	198				
LA's 21-30; $r=.32$, PE .04											
6		3	2	2			7				
5	2	11	12	6	3	1	35	94.8	7.7		
4	1	20	37	32	9		99	98.7	7.0	3.9	2.15
3		4	13	16	7		40	102.9	6.8	4.2	2.44
2		1		9	4	1	15				
1			1	3			4	Med. Occ. Class =4.42			
N	3	39	65	68	23	2	200				

Numerous studies of the nature-nurture problem suggest a relation of *intellectual* maturation to social-economic status. But the problem of cause versus effect continues to invite controversy. Logical considerations and experimental evidence likewise suggest a relation of social maturation to intellectual maturation. Hence we should expect a relation of social maturation to social-economic status by way of their mutual relation to intelligence.

Confining the present argument to normative evidence we present in Table 7 the distributions of SQ by S's paternal occupational class (Minnesota Scale, POC 1 = high). Data are segregated for LA's 1 to 10, 11 to 20, and 21 to 30, inclusive. LA 0-1 has been omitted because of extreme variability of SQ at this period. For pooling purposes, SQ's for LA's below 11 have been converted (see p. 377) to average adult variability (SD = 9), and SQ's for LA 2-3 (where mean SQ = 112) have been adjusted to SQ = 100. Finer adjustments were considered unnecessary for pooling purposes of such a survey.

TABLE 7A

DISTRIBUTION OF SQ BY SUBJECTS' OWN OCCUPATIONAL CLASS FOR NORMAL SUBJECTS

S's Occ. Class	SOCIAL QUOTIENT 71	81	91	101	111	121	N	Median SQ	Q	Med. Diff.	CR
	LA's 21-30; $r = .56$, PE .03										
6	1	3					4				
5	1	17	23	7			48	93.6	5.7		
4	1	14	23	14	7		59	97.3	7.2	3.7	2.36
3		4	18	45	15		82	105.2	4.9	7.9	5.81
2				1	2		3				
1						1	1	Med. Occ. Class = 4.21			
N	3	38	64	67	24	1	197				
Med. SOC		5.06	4.61	3.72	3.67		4.21				

Table 7A presents the data on relation of SQ to S's own occupational class for subjects at LA's 21 to 30, inclusive.

Table 7 shows low positive correlation between SQ and S's paternal occupational class for LA's 1-10 and 21 to 30, and negligible correlation for LA's 11-20. The median differences by successive occupational classes are negligible in amount and of low statistical reliability for LA's 11-20. At LA's 1-10 and 21-30 the median differences are appreciable and statistically significant between occupational classes 3 and 5. (Calculations are omitted where N is less than 30.) In general then we observe a weakly positive dependence between social maturity and social-economic status (as represented by paternal occupation) for the normative sample. More significant relationships are apparent, however, as the spread between classes is widened. This problem has been more specifically considered in an unpublished report (p. 487) and in a study of the inheritance of social competence (see p. 466).

Table 7A shows a somewhat more marked dependence between SQ and S's own occupational class than is apparent from S's paternal class. Here the correlation reaches $r = .56$. This is only partly due to the influence of occupational items at LA's 21-30 on SQ. There is also a faint tendency for the S's own occupational class to exceed that of their parents (4.21 and 4.42, respectively).

These relationships do not permit positive conclusions because of (a) the small numbers of cases, (b) the unreliability of estimating occupational class, (c) the low order of relationship, and (d) the dubious inference as to cause and effect.

Statistical cautions. Throughout this presentation we have suggested certain limitations in the statistical ramifications of the data. It is evident that the number of S's is relatively small, that the desirabilities of sampling are not fully satisfied, that consequently certain statistical procedures are dubiously applicable, that much of the original treatment of data has been omitted.

We have also been constrained to restrict both treatment and discussion by the limitations of space, and the presumptive immediate interests of the reader. Hence we have avoided many intricacies that the statistical critic might desire, while offering some that the ordinary reader may find confusing.

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10

Item Validation with Feeble-Minded Subjects

We are but plants, however high we rise,
Whatever thoughts we have, or dreams we dream,
We are but plants, and all we are and do
Depends upon the seed and on the soil. —Edgar Lee Masters

Following the normative standardization of item performances and total scores it is desirable also to establish their validity. Several standard procedures were employed, e.g., validating item scores against total scores, and total scores against independent criteria. But these techniques could not surmount the factor of life age. We consequently resorted to validation based on SA scores of feeble-minded subjects, with whom (a) most items showed little influence of LA beyond its relation to MA, (b) the total scores showed little or no such influence, and (c) the criteria of clinical diagnosis, degree of mental retardation and institutional residence as feeble-minded could be regarded as clear evidence of social inadequacy. The elaboration of these considerations (see p. 401) is presented in this chapter for a controlled "item-analysis group" and in Chapter 11 for a total institutional population. Additional validation with other types of subjects is abstracted in Chapter 13, and for clinical case studies in Chapter 14.

The mentally deficient subjects employed for the validation study represent about five hundred subjects from The Training School at Vineland, New Jersey. This included all "children" in residence at the time of examining. For purposes of item analysis a planned sample of this total population (see p. 395) was extracted for SA's 0-11.9 (the upper limit of N = 10 for each sex). The total population was also employed for the evaluation of other variables (Chapter 11).

*Institutional scene.** The Training School (VTS) is a semi-private institution for the care and training of "those whose minds have not developed normally." It is a cottage type of residential school for mentally deficient children and adults of both sexes. The central plant, occupying about two hundred seventy-five acres in Landis Township, on the outskirts of the borough of Vineland, is supplemented by a nearby farm colony of about fourteen hundred acres. The institution was founded in 1888, and since about 1910 has had a continuing population of approximately 540 mentally subnormal and borderline "pupils," commonly referred to as children regardless of life age. About one hundred of the adult male group live at Menantico Colony, a branch unit about four miles distant, engaged in land clearing, dairying, stock raising and other agricultural pursuits.

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* As of 1935.

The institution maintains educational and occupational training departments through which all members of the population receive systematic education and training by means of progressive procedures for the personal, social, scholastic, and vocational development of the children. The institution has its own hospital with visiting physician and consulting staff of medical specialists. The School's store affords opportunities for periodic minor purchases on a cash-equivalent basis. The principal occupational activities include the domestic care of the cottages, kitchen and dining-room services, maintenance work in building and repair departments, making and repairing clothing, care of lawn and grounds, and all the various phases of general farm work such as dairy, hogs, poultry, draft animals, orchards, truck and field gardening.

The program of the School provides a reasonable degree of individual liberty within a system of operation corresponding to that of a private boarding school adjusted, of course, to the mental limitations of the pupils. While there is general freedom of movement within the confines of the institutional property, and to some extent into the nearby neighborhood, movement outside the cottage groups and the property as a whole requires specific approval. There is some relaxation of the general regimen in proportion to individual responsibility for the discreet exercise of such relaxation of "rules."

An employed staff of about one hundred and eighty persons reflects generally favorable selection in respect to cultural and educational qualifications. Most of the employees live in the children's cottages, thus providing personal contact between children and staff beyond the immediate supervisory relationships. This interest in the children on the part of the staff materially extends social contacts, through parties, picnics, entertainments, sports, and occasional trips to town and to nearby cities. Women staff members supervise the girls' groups; both men and women serve the boys' groups.

About seventy-five per cent of the population are boys, and twenty-five per cent girls. The sexes are separated in living groups and in school classes, but attend the same school and mingle in various school and social activities.

About forty per cent of the children are private pupils admitted under the guardianship of their immediate families for indefinite periods of residence. Two-thirds of these come from nearby states; the remainder come from all parts of the United States and its possessions as well as from foreign countries in which their parents are resident. Most of these children have had excellent previous home care and superior environmental advantages. Some of them from time to time travel to and from their homes independently or semi-independently. They have had (and have) such freedom of environmental opportunity at home or while on vacation as their mental limitations make practicable.

About sixty per cent of the children are wards of the State of New Jersey, or of other state or private agencies. This group represents a wider range of social-economic status, but broadly speaking the distributions for state and private wards are in the totals fairly similar. On the whole, comparisons of this population with those of other U. S. institutions show generally like (Caucasian) distributions.

The movement of population reflects about fifteen per cent of change annually by the admission of approximately seventy-five pupils per year and the dismissal of a corresponding number. This movement affects the population unequally; about half of the number have been resident for more than ten years, whereas the median length of residence of those who leave is about two and one-half years.

The children are classified by sex, mental ability, age and personality in cottage household groups of from fourteen to thirty children per "family." One feature of The Training School is the care with which this classification is determined following individual consideration of cultural background, personal history, physical condition, mental and educational aptitudes, social adjustment and congeniality. State versus private status is a business distinction which affects cottage and assignment classifications but little, except as reflected in the characteristics and best interests of the children as individuals. Most of the employees are generally unaware of this business distinction and exercise little or no discrimination regarding it.

Cottage life is on a "home group" basis with a continuing effort to reduce regimentation to a minimum and to increase personal self-expression and welfare to a maximum. Each cottage has its own playground in addition to the general recreational areas of the School as a whole. The recreational and home training program is the responsibility of the cottage housemother, housefather, or houseparents, subject to the oversight of group supervisors and matrons. The cottages provide single and multiple quarters for individual or congregate living suited to intra-cottage desirabilities, as well as general social rooms for the cottage groups as wholes. Transfers from cottage to cottage are freely arranged through the School Principal as the schedule and assigning officer, subject to the advice of a Children's Committee. This Committee, consisting of the School, Laboratory, Hospital and Cottage department heads, with the Superintendent or Director as chairman and the Children's Secretary as secretary, observes final oversight over all problems affecting the pupils' welfare such as classification, education, training, health, discipline, admission, release. The extent to which the School realizes its motto, "Happiness first; all else follows" rests ultimately with this Children's Committee.

The assignments of the children to school and occupation are individually determined on the basis of personal study and interests of each child. About half of the population attend classes in the educational department for the entire day or for half a day, while nearly all children attend some type of class, even if only for a single period of the day. Assignments to extra-school activities include the occupational pursuits previously noted. School contact is maintained for the older children through assignments to the band, to various choral groups, to domestic science activity, and so on. Training in occupational pursuits is under the immediate supervision of the department to which assignment is made by the School Principal.

Training in personal care and self-help is continuous in all cottages, and school classes are maintained in the cottages for the less able or infirm children who do not attend formal school classes. Social activity is encouraged among the children through cottage parties, entertainments, field exercises, holiday observances, dramatic productions, weekly and semi-annual entertainment programs under school auspices. There are also special clubs for both boys and girls, a Boy Scout Troop, baseball teams, and other recreational pursuits. Free recreation is encouraged in outdoor play such as roller skating, ice skating, swimming, competitive play, picnics and so on. An employee-and-pupils' baseball team has a good record in the local YMCA-sponsored league. A summer camp is maintained in which all children participate for some period.

Cash-equivalent accounts are maintained through the business office, including both earnings and gratuitous income. Savings in these accounts are encouraged for children of sufficient mentality to participate in the use of money and the exercise of minor purchases, made principally at the School store. This includes purchasing for holidays and anniversaries as well as for personal satisfactions and more immediate interest.

Correspondence contact is encouraged between the children and their families and friends. Magazines, books and newspapers are at hand for those able to enjoy them. Radio programs of all kinds are freely available. Motion picture programs are provided, including some attendance at motion picture houses in Vineland. Shopping in nearby stores is encouraged for those able to exercise this privilege. There are few restrictions on visitation from parents, friends and relatives; both brief and protracted visits at home are observed where home conditions warrant. In general the social scene is closely similar to that of a standard academic boarding school with due regard for the mental limitations and social inadequacies of the pupils.

The population as a whole includes a small number of pupils in upper borderline classifications where social maladjustment approximates mental deficiency. Some of these represent doubtful diagnosis, special handicap, delayed development, delayed retardation, and other clinical categories sometimes termed pseudo-feeblemindedness. For the most part these individuals are socially inadequate in spite of fairly good scores on some standard tests. This group constitutes from five to ten per cent of the total population at any given time, a small number of individuals moving out of this classification and into the group of marginal normal social adequacy in any given year.

In the main, the institution represents a stimulating environment and reflects a high level of care with numerous advantages for self-expression and for continuing mental and social development. On the whole the social atmosphere is as "normal" as can reasonably be maintained with due regard for the mental and social limitations of the residents. The members of this population are reviewed annually by standard methods of case history evaluation under the auspices of the clinical division of the Department of Research. This Department maintains a continuing appraisal and reappraisal of all children in terms of the well advanced procedures of clinical psychology. These appraisals include evaluation of etiology as well as individual characteristics in addition to total differential mental diagnosis. Children who are in progressive stages of mental development receive particular attention so that no child is "lost" in the population and so that measures of prophylaxis, education and psychotherapy may be pursued to the most profitable advantage. Such pupils as ultimately surpass the classification of apparent mental deficiency, or who achieve promise of social adaptation in spite of it, are considered for return to their families or for dismissal as no longer requiring social supervision.

The distributions of the total population as of the time of this study and from which our validation samples were drawn showed: (1) life ages from 5 to 50+ years, with median LA at 22 years; (2) length of residence extending from recent admission to 50 years, with median residence at 9 years; (3) Binet mental ages from 1 to 16 years, with median MA at 7 years; (4) Binet intelligence quotients from 10 to 110, with median IQ at 53; (5) social ages (Vineland scale) from 1 to 16 years, with median SA at 7 years; (6) social quotients from 10 to 90, with median SQ at 39. The trends in respect to these data showed no very significant divergences from year to year, or by sex, or by state and private classification.

This description of scene and facilities, like that for the normative S's, indicates the major parameters surrounding the validation population and the social circumstances relevant to the use of the Scale in this environment.

Description of S's. For purposes of item analysis selected samples of S's were drawn from the total VTS population. All examinations were made by the standard procedure by experienced examiners at The Vineland Laboratory employing well-informed attendants and cottage supervisors as single informants. These examinations were made routinely during the year 1939-40 (see p. 414) as part of the clinical examining program of The Training School at Vineland, N. J. This work was under the immediate supervision of Kathryn F. Deacon, research assistant, who checked all records for completeness and accuracy. Records were discarded which failed to satisfy the requirements of standard administration and scoring.

A few subjects were drawn from other sources, namely; at SA 0-1 years, 10 male subjects from the New Jersey State Colony for Feeble-Minded Males, Woodbine, New Jersey, and 10 female subjects from the Vineland (N.J.) State School; also at SA 1-2 years, 5 male subjects from the Woodbine Colony, 4 female subjects from the Vineland State School, and 1 male and 2 female subjects from the Maplehurst School, Vineland, N.J. (in addition to 4 S's of each sex from VTS).* These subjects were generally comparable to those from The Training School at Vineland, and were all examined by Mrs. Deacon using standard procedure.

In selecting all subjects care was exercised to avoid special conditions other than mental deficiency which might seem to affect the individual scores. Subjects were excluded whose scores appeared to be significantly influenced by motor or sensory handicap, emotional or conduct disturbance, borderline or questionable diagnosis, advanced age, or poor health. Representative numbers of the mongoloid type of mental deficiency were included.

Research in mental deficiency has revealed some important differences according to the etiology of the condition as endogenous or exogenous. This distinction is ignored in the item analysis sample which, as noted above, includes representative numbers of the different categories of mental deficiency. Although one gains the impression from continuous work with the Social Maturity Scale that mentally deficient subjects of different etiologies reveal significant SA-MA differences, this is not supported by our limited evidence (p. 443, p. 444 and p. 446). Consequently it seemed desirable in both the item analysis sample and in the total VTS population to ignore this variable. A further reason is that since the majority of investigators have not yet recognized the research significance of the etiological classification of mental deficiency the inclusion of both groups in these samples gives presently a more generally accepted picture of mental deficiency.

We return later to more specific evaluation of such variables.

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* Appreciation is expressed to Mr. Edward L. Johnstone, Superintendent of the Woodbine Colony, Mr. George B. Thorn, Superintendent of the Vineland State School, and Mrs. Ameline B. Arnade, Director of the Maplehurst School, for their generous cooperation.

For present purposes, and omitting the supportive evidence, we may say that the Table 8 sample closely resembles the total VTS population except as this was affected by excluding subjects above LA 41 years, those above SA 11-12, and those of doubtful mental diagnosis. The data of Table 8 are restricted to SA's below 12 years because 10 S's for each sex were not available to us beyond this limit. Subjects beyond SA 11-12 are included in the subsequent analysis of the total Training School S's (Chapter 11) and in the item data of Chapter 6.

TABLE 8

DESCRIPTION OF FEEBLE-MINDED SUBJECTS

(Item-Analysis Sample)

N=10 male and 10 female subjects at each SA; T=240

1 SA Group	2 Mean LA	3 Mean SA	4 Mean MA	5 Mean SQ	6 Mean IQ	7 Mean Res.	8 Mean POC
0- 1	17.4	.7	.8	5	7	8.2	4.0
1- 2	13.9	1.4	1.3	13	13	5.8	2.8
2- 3	16.3	2.6	2.8	20	23	6.2	2.5
3- 4	16.0	3.4	3.3	30	33	6.4	3.6
4- 5	14.0	4.5	4.6	36	40	3.7	3.3
5- 6	20.1	5.4	5.1	38	43	7.7	3.5
6- 7	24.1	6.5	5.7	36	41	9.0	3.8
7- 8	22.8	7.4	6.6	41	49	11.0	3.6
8- 9	22.9	8.4	7.4	45	53	9.8	4.3
9-10	25.7	9.3	8.2	43	58	12.6	4.0
10-11	29.8	10.4	8.1	42	58	14.6	4.4
11-12	25.3	11.3	8.9	52	63	10.7	4.7

The descriptive data for the item-analysis subjects are presented in Table 8. The first column shows the SA intervals.

The second column of Table 8 shows the mean life ages corresponding to the successive SA groups. *For all comparisons between normal and feeble-minded subjects where the former are grouped by LA and the latter by SA (e.g., in Chapter* 6 *and in Table* 9) *it must be recalled that these feeble-minded subjects are on the average 14 years older than the normal subjects in life age,* with a minimum mean difference of 9.5 years at SA 4-5 and a maximum mean difference of 19.3 years at SA 10-11. The subsidiary distribution of life ages in relation to social ages is presented in Table 8A. The life ages range from 5 to 41 years and are about equally distributed by sex (data omitted) within the social age groups.

The third column of Table 8 shows the mean SA for each SA group. The individual scores contributing to these means are unaffected, or at most only slightly affected, by special conditions other than basic mental deficiency. The influence of environment, both inhibitory and stimulative, is considered later. For present purposes these influences are either negligible or non-determinate.

TABLE 8A

DISTRIBUTION OF SA BY LA FOR FEEBLE-MINDED SUBJECTS
(Item-Analysis Sample)
N=10 male and 10 female subjects at each SA; T=240

Life						SOCIAL AGE							
Age	.1-.9	1	2	3	4	5	6	7	8	9	10	11	N
5		2											2
6			1	1									2
7	1	2		3									6
8	1		2	3		2							8
9	1	3	1	2	4	2							13
10			3	2	5								10
11	1		1		2	2	2	2	2				12
12	2	1	1	1	1	2							8
13	1	6	1			2	2	2					14
14	1	1	2			2	4						10
15	1	1	1		2			2	2	2			11
16	2	1						2	4	2		3	14
17	1			1									2
18	2		2	1					2				7
19					3			2				1	6
20	2				1							1	4
21	1			1				2		2		3	9
22			1	1	1				2	2	3	1	11
23		1						2			1	2	6
24					1		3				1	1	6
25			1				1		2				4
26	1	1				1				3		1	7
27				1							1	2	4
28			1	1		1				4	2		9
29								1			1		2
30						2	3	1		1	3	1	11
31	1					1			1	1	1		5
32			1				1				3		5
33		1	1						1	1			4
34						1	1	1	1		2	1	7
35	1								2	1		1	5
36							1		1		1	1	4
37				1						1			2
38								1					1
39				1		1					1		3
40						1	2	1				1	5
41								1					1
T	20	20	20	20	20	20	20	20	20	20	20	20	240

The fourth column of Table 8 shows the mean mental ages (1916 Stanford Binet) derived from the individual SA and MA scores contributing to each SA group. These MA's are from competent examinations made at approximately the same time as the SA examinations. The subsidiary distribution of MA by LA is given in Table 8B, and for SA by MA in Table 8C.

The fifth column of Table 8 shows the mean SQ's derived from the individual subjects for each SA group. These are based on the normative average adult ceiling of LA 25 years. They involve some regression due to different LA ceilings for "final" SA's of feeble-minded subjects (p. 465, 543).

The sixth column of Table 8 shows the mean IQ's (1916 Stanford Binet) derived from the individual MA's underlying Column 4. These IQ's are based on the normative average adult ceiling of LA 14 years.

TABLE 8B

DISTRIBUTION OF MA BY LA FOR FEEBLE-MINDED SUBJECTS

(Item-Analysis Sample)

N=10 male and 10 female subjects at each SA; T=240

Life Age	MENTAL AGE .1-.9	1	2	3	4	5	6	7	8	9	10	11	12	T
5		2												2
6			1		1									2
7	1	1	1	3										6
8	1	1	1	2	1	1	1							8
9	1	3	1	1	4		3							13
10		2	1	3	2	2								10
11	1	1			2	2	3	2	1					12
12	1	2			3	2								8
13	1	6	1			3	1	1	1					14
14	1	1	1	1		2	3	1						10
15	1	1	1	1	1		1	3		2				11
16	1	2					1	2	5	3				14
17		2												2
18	1	1	1	2		1		1						7
19					3	1	1				1			6
20	2				1								1	4
21	1		1			1	2	2	1	1				9
22		1	1		1		4	1	1	2				11
23		1				1	1		2	1				6
24					3			1	1		1			6
25			1	1			2							4
26	2			1				2	1	1				7
27			1					3						4
28				2	1		1	2	1	2				9
29						1		1						2
30					1	3	2	3		2				11
31	1					1	1	1	1					5
32				1				1	1	2				5
33		1		1				2						4
34					1	1	1	2	2					7
35	1							1	2	1				5
36				1			1		1	1				4
37				1				1						2
38							1							1
39				1	1			1						3
40				1		1	1		2					5
41						1								1
N	17	28	13	23	26	24	31	34	23	18	2	0	1	240

The seventh column of Table 8 shows mean length of continuous residence at The Training School for the individual subjects of each SA group. These data show some adventitious variation. For subjects at SA 0-1 and SA 1-2 obtained outside The Training School, length of residence is based on individual residence at the places represented.

The last column of Table 8 shows the mean S's paternal occupational class for each SA group. The frequently reported tendency toward negative correlation between degree of mental deficiency and social-economic status is apparent except for the state school subjects at SA 0-1. This reflects the usual preponderance of exogenous etiology among the low-grade feeble-minded and endogenous among the high-grade (p. 442).

TABLE 8C

DISTRIBUTION OF SA BY MA FOR FEEBLE-MINDED SUBJECTS

(Item-Analysis Sample)

N=10 male and 10 female subjects at each SA; T=240

Mental Age	SOCIAL AGE												T	Mean SA*
	.1-.9	1	2	3	4	5	6	7	8	9	10	11		
.1-.9	16	1											17	.56
1	4	18	4	2									28	1.64
2		1	8	4									13	2.73
3			6	10	3	2	2						23	3.80
4			1	4	12	7	2						26	4.69
5			1		3	7	7	5	1				24	6.08
6					2	3	6	9	7	3	1		31	7.44
7						1	2	3	6	7	10	5	34	9.44
8							1	3	5	3	5	6	23	9.63
9									1	7	3	7	18	10.39
10											1	1	2	
11													0	
12												1	1	
N	20	20	20	20	20	20	20	20	20	20	20	20	240	
Mean MA*	.70	1.50	2.35	3.30	4.70	5.20	5.85	6.70	7.40	8.20	8.15	8.90		

* *Calculated from grouped data*

For the moment we may regard the data of Tables 8 to 8C as only selectively descriptive of the item-analysis sample of subjects. The further analysis of related variables is reserved for subsequent presentation (Chapter 11) based on the total VTS population.

Sex differences. In selecting the item-analysis sample the male and female subjects for each social age group were paired as closely as practicable for life age. The relatively limited number of total subjects available did not permit further selective control in view of the large number of variables involved. The detailed evidence (data omitted) showed a very close parallelism between the sexes in respect to the variables noted in Table 8, with no observable significant differences.

Likewise, the analysis of item differences by sex for these feeble-minded subjects showed no significant differences. The largest single amount of difference in mean item-SA-norm was found on Item 61 (Goes to school unattended), which is appreciably influenced by environmental supervision. The amount of M-F difference on this item was 2.10 years in favor of the male subjects (SA norms 5.70 vs. 7.80 years) with a CR of 2.56. Other items showed negligible amounts of difference and low CR's.

We had anticipated the likelihood of larger sex differences in item performance, and in the relation of SA to MA, because of presumptively significant differences in the environmental restraints and compensatory stimulation which might affect the feeble-minded unequally by sex. We need not here indulge in the implications ensuing from the contradiction of such anticipation. One practical consequence, however, is that the Scale requires no differential interpretation by sex as applied to these feeble-minded subjects in general. Examiners will exercise alertness in this respect according to special circumstances not present in these data, but in the light of these results should not discount scores too liberally on presumptions of sex differences.

For purposes of statistical treatment the absence of sex differences permits combining the data by sex for the item-analysis sample as a whole.

Item validation. Numerous methods of item analysis and validation were employed. From comprehensive considerations the use of item-age-norm standard deviations based on the performances of successive social-age groups of feeble-minded subjects appeared to offer the most satisfactory index of item discrimination.* Since the normative standardization was based on life age alone, comparisons with the corresponding social ages (Table 2) would, even for normal subjects, be seriously influenced by the variable of life age. And since the maturation period for feeble-minded subjects is more heavily dependent upon inherently restricted maturational potential than upon age as such, the rate of maturation and the period of maturation are more heavily dependent upon ultimate social age than upon life age *per se*. This is implicit in Table 8 and confirmed in other data to be presented later. Hence the use of mentally deficient subjects classified by social age units at periods where the influence of life age in relation to social age is minor or negligible affords a satisfactory means of validating items against total social age scores. We shall see that the influence of LA upon item performance and upon SA with these feeble-minded subjects is relatively low, especially after allowing for the influence of MA on both terms.

Hence we conclude that a severe criterion for item validation is available in the SD's of item performances for

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* This text does not attempt to resolve the ambiguous relations of such terms as discrimination, consistency and validity with reference to the ultimate criterion of adequacy.

TABLE 9
MEAN ITEM TOTAL NORMS FOR FEEBLE-MINDED VS. NORMAL SUBJECTS
N = 10 male and 10 female subjects at each LA or SA

1 Item	2 Normal LA Mean	3 Normal SD	4 FM SA Mean	5 FM SD	6 N—FM Diff.	7 SE Diff.	8 CR	9 FM SD/M
1	.25	—	.33	—	—.08	—	—	—
2	.25	—	0†	—	.25	—	—	—
3	.30	—	.50	.52	—.20	—	—	1.04
4	.30	—	1.05	.60	—.75	—	—	.57
5	.30	—	0	—	.30	—	—	—
6	.35	—	.70	.57	— 35	—	—	.81
7	.43	—	1.05	.60	—.62	—	—	.57
8	.45	—	0	—	.45	—	—	—
9	.55	—	.10	—	.45	—	—	—
10	.55	—	1.45	.75	—.90	—	—	.52
11	.55	—	.53	—	.02	—	—	—
12	.63	—	.05	—	.58	—	—	—
13	.65	—	1.33	.54	—.68	—	—	.41
14	.70	.48	1.35	.49	—.65	.157	4.14	.36
15	.85	—	0	—	.85	—	—	—
16	.90	.55	.85	.80	.05	.221	.23	.94
17	.93	.29	1.18	.33	—.25	.101	2.48	.28
18	1.03	—	1.18	.75	—.15	—	—	.64
19	1.10	.33	1.80	—	—.70	—	—	—
20	1.10	—	1.40	.81	—.30	—	—	.58
21	1.13	.73	1.55	—	—.42	—	—	—
22	1.20	—	1.85	.67	—.65	—	—	.36
23	1.30	—	1.33	.70	—.03	—	—	.53
24	1.38	—	1.75	.45	—.37	—	—	.26
25	1.40	.45	1.43	.40	—.03	.138	.22	.28
26	1.43	—	.10	—	1.33	—	—	—
27	1.50	.47	1.95	.64	—.45	.182	2.47	.33
28	1.53	—	1.45	.82	.08	—	—	.57
29	1.63	.73	1.55	.60	.08	.216	.37	.39
30	1.65	.74	1.63	.87	.02	.262	.08	.53
31	1.70	—	2.15	.97	—.45	—	—	.45
32	1.75	.45	.78	.77	.97	.204	4.75	.99
33	1.85	.38	1.95	.68	—.10	.178	.56	.35
34	1.95	.52	2.65	.67	—.70	.194	3.61	.25
35	1.98	.63	2.13	.96	—.15	.263	.57	.45
36	2.03	.83	2.33	.73	—.30	.253	1.19	.31
37	2.05	.82	1.78	.30	.27	.200	1.35	.17
38	2.35	.86	3.10	1.19	—.75	.337	2.23	.38
39	2.43	.51	1.95	.51	.48	.166	2.89	.26
40	2.60	.95	3.00	.65	—.40	.264	1.52	.22
41	2.85	1.00	2.30	.76	.55	.288	1.91	.33
42	2.85	.97	2.45	.51	.40	.251	1.60	.21
43	2.88	1.06	3.65	.67	—.77	.287	2.68	.18
44	3.15	.97	4.05	1.03	—.90	.324	2.78	.25
45	3.23	1.07	2.20	1.70	1.03	.461	2.24	.77
46	3.28	.93	3.20	1.15	.08	.339	.24	.36
47	3.35	.92	3.05	.96	.30	.305	.98	.31
48	3.55	1.03	3.40	.87	.15	.309	.49	.26
49	3.75	1.12	4.45	2.05	—.70	.535	1.31	.46
50	3.83	1.38	4.05	.87	—.22	.374	.59	21
51	3.83	1.19	2.98	1.30	.85	.404	2.10	.44
52	4.65	1.46	4.65	.86	0	.388	—	.18
53	4.70	1.09	4.58	1.95	.12	.512	.23	.43
54	4.80	1.33	3.80	.96	1.00	.376	2.66	.25
55	5.13	.88	5.95	1.69	—.82	.437	1.88	.28
56	5.13	.65	6.20	2.31	—1.07	.550	1.95	.37
57	5.13	1.39	6.68	2.12	—1.55	.581	2.67	.32
58	5.23	.77	6.68	1.92	—1.45	.474	3.06	.29
59	5.63	.98	7.50	1.25	—1.87	.363	5.15	.17
60	5.83	1.12	8.18	1.62	—2.35	.451	5.21	.20
61	5.83	.98	6.75	2.03	—.92	.516	1.78	.30
62	6.03	2.24	4.75	1.34	1.28	.598	2.14	.28
63	6.15	.80	8.13*	1.71	—1.98	.433	4.58	.21
64	6.23	1.73	5.83	.81	.40	.437	.92	.14
65	6.75	1.95	6.45	1.79	.30	.607	.49	.28
66	7.28	1.29	8.48	1.40	—1.20	.437	2.75	.17
67	8.05	1.95	5.55	1.37	2.50	.546	4.58	.25
68	8.28	1.81	7.25	1.21	1.03	.499	2.07	.17
69	8.28	1.55	8.43*	1.68	—.15	.524	.29	.20
70	8.45	1.47	6.33	1.58	2.12	.495	4.29	.25
71	8.50	1.78	7.65*	1.86	.85	.590	1.44	.24
72	8.53	1.93	6.25	1.14	2.28	.513	4.45	.18
73	8.55	1.45	9.98*	1.55	—1.43	.486	2.94	.16
74	8.85	1.69	7.60	1.61	1.25	.535	2.34	.21
75	9.03	1.61	6.40	1.12	2.63	.450	5.84	.18

† *For explanation of SA mean = 0, see footnote p. 77.*

* *100% assumed at SA 12-13.*

successive SA groups of mentally deficient subjects. As an item approaches discriminative perfection the SD of the item ogive for sequential SA groups approaches zero as a limit. Consequently the smaller the SD the higher the item validity in terms of the Scale as a whole, that is in terms of total or SA scores. The relative consistency of items may then be evaluated by comparing coefficients of variation ($V = 100$ SD/M). The conventional standard of a coefficient of variability less than $V = 50$ may then be employed as a criterion.

The data for these criteria are found in Table 9. This table shows in successive columns: (1) normative item number, (2) mean LA-item-norm for normal subjects sexes combined (Table 2, column 9), (3) corresponding item SD (Table 2, column 10), (4) mean comparative SA-item-norm for feeble-minded subjects sexes combined, (5) corresponding item SD, (6) comparative mean item norm difference between normal and feeble-minded subjects (column 2 minus column 4 with minus sign indicating normative superiority), (7) the corresponding SE of the mean difference, (8) the critical ratio of the difference, and (9) the feeble-minded SA-item-norm divided by its SD (column 5 divided by column 4) or the decimal coefficient of variation.

As in Table 2, standard deviations could not be calculated for those items which did not yield at least two percentage points between 0 and 100 per cent on the item SA ogive (p. 360). Hence such items do not yield standard coefficients of variation. And where either the normative or the comparative item SD is lacking, the SE of the difference and the CR are also lacking.

Item calculations could not be extended beyond Item 75 for lack of complete ogives for subsequent items. As in Table 2, the ogives were considered complete at the first stable 100 per cent of passes, that is, provided not more than one subject of either sex failed to pass the item after this point. In the case of Items 63, 69, 71 and 73 the highest attained per cent of passes was 95 per cent. For these four items 100 per cent of passes was assumed for SA's beyond SA 11-12 years, and this was confirmed by the unsystematic item data (Chapter 6) beyond SA 11-12. Item 86 also attained 95 per cent of passes, but this was not sustained in the later SA groups and hence the ogive was considered incomplete. The influence of different classes of passing scores (+F, +NO, etc.) is considered in a later section.

It will be observed from Table 9, column 5, that the SD's of items by SA progression vary irregularly between .30 and

2.31 for the 64 items yielding SD's. The median SD is .79 with a modal grouping between .60 and .90. There is a tendency for the SD to increase unevenly with mean SA norm (median SD = .67 below Item 44 and 1.50 thereafter).

The mean item-SA-norms (column 4) increase rather irregularly but show a fairly close parallelism to the normative year intervals.

The mean N-FM differences are displayed in column 6. It is to be anticipated that feeble-minded subjects would show delayed maturation on most if not all items. These data show such delayed maturation for *all* items in relation to *life* age. But when the data for feeble-minded subjects are tabulated in terms of *social* age disregarding life age (as in Table 9) then it appears that some items are relatively difficult and others relatively easy when compared with normal subjects in terms of life age. *These relative differences constitute data of appreciable value in the differential psychology of mental deficiency.* Some are due to the factor of age as related to experience, some to relative aptitude or inaptitude in relation to the psychological mechanisms involved, some to excess or diminution in regimentation or training, and so on.

A similar situation is found in the item analysis of such scales as the Stanford-Binet in respect to which the feeble-minded are also subnormal in all items with respect to *life* age comparisons with the normal, but show relative ease or difficulty in terms of *mental* age disregarding life age (cf. p. 405).

The coefficients of variation (column 9 times 100) vary irregularly from 104 (Item 3) to 14 (Item 64). The median is 30, and the mode (one-third of all items) is at 20-30. Seven items are between 50 and 60, and six additional items are above 59. Considering a coefficient of variation of less than 50 as conventional evidence of satisfactory consistency, eleven of these 75 items are indeterminate (for lack of SD's), fifty-one are satisfactory, seven are marginal and six unsatisfactory. The six unsatisfactory items are Items 3, 6, 16 18, 32, and 45. All of these are within the idiot range of mental deficiency (below SA 3.5) where there is a relatively large number of items.

It is regrettable that lack of systematic data does not permit the evaluation of items beyond Item 75. There are many reasons for inferring that the more advanced items would show specially high discrimination. In general the items most likely to be passed by the feeble-minded subjects are in the self-help and the occupation categories where the difference in age and experience most favors the feeble-minded. Larger discriminative power is noted for the other categories, but most of these items are found at the upper limits of mental deficiency where presumptive validity is difficult to establish for lack of sufficient ceiling data.

Differential items. In such a scale it is possible to obtain consistent comparative total scores for differential subjects if (a) all items are of approximately equal comparative difficulty, or (b) if items of unequal comparative difficulty are about equally distributed as to location, and about equally balanced as to amount and direction of difference. In the former case the comparative total scores are undisturbed; in the latter case they will be disturbed by the extent to which comparative item differences fail to neutralize each other in the total scores within the range of the scale as so affected. Even if the total scores are not neutralized by such cancellation of item inequalities, the effects can be allowed for if known. And the evaluation of such known comparative item difficulties then permits qualitative analysis in addition to the quantitative interpretation of total scores. This practice is specially helpful in doubtful or borderline diagnosis.

This device of "diagnostic test" interpretation has long been evident in the clinical use of psychometric data. It is sometimes employed subjectively or even implicitly in the intuitive process of obtaining a "clinical impression." And it has had extensive objective expression in demonstrated "test patterns" of single scales (e.g., Wechsler-Bellevue) as well as in the clinical interpretation of the multiple data obtained from test batteries.

An early analysis* of such differentiating tests in the 1911 Binet-Simon Scale led to a dichotomized scale, both parts being equally difficult for normal subjects but one "easy" and the other "hard" for mentally deficient subjects.

Column 6, Table 9 shows the amounts of the item-norm differences (column 2 minus column 4, minus values indicating maturational superiority for normal subjects, and plus values superiority for feeble-minded subjects ignoring LA), column 7 the SE's of the differences, and column 8 the critical ratios.

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* Cf. Edgar A. Doll. A brief Binet-Simon Scale. *Psychological Clinic*, December, 1917, and January, 1918; Vol. 11, pp. 197-211, 254-261.

Assuming CR's of 2.75+ as indicating statistically reliable differences we obtain Table 9-A. If a higher CR is employed the table will be reduced accordingly.

TABLE 9A

ITEMS SHOWING SIGNIFICANT CR'S FOR NORMAL LA VS. FEEBLE-MINDED SA

Item No.	Category	Caption	CR	N—FM Diff.	D/SD*
75	SHE	Cares for self at table	5.84	2.63	1.63
32	L	Walks upstairs unassisted	4.75	.97	2.15
67	SHE	Uses table knife for cutting	4.58	2.50	1.28
72	O	Does routine household tasks	4.45	2.28	1.18
70	SHD	Combs or brushes hair	4.29	2.12	1.44
39	SHE	Gets drink unassisted	2.89	.48	.96
60	SD	Is trusted with money	5.21	—2.35	—2.10
59	S	Plays simple table games	5.15	—1.87	—1.91
63	C	Uses pencil for writing	4.58	—1.98	—2.48
14	S	Demands personal attention	4.14	—.65	—1.35
34	C	Talks in short sentences	3.61	—.70	—1.35
58	C	Prints simple words	3.06	—1.45	—1.88
73	C	Reads on own initiative	2.94	—1.43	—.99
44	C	Relates experiences	2.78	—.90	—.93
66	SHG	Tells time to quarter hour	2.75	—1.20	—.93

**The mean difference expressed as a multiple of the normative item SD (cf. Table 2).*

This table shows six items indicating statistically reliable relative superiority for feeble-minded subjects and nine items for normal subjects (disregarding the advantage of LA for feeble-minded subjects). Eleven of these items show better than one-sigma normative discrimination. For five items the *amounts* of difference are less than one year.

These results are in accord with general expectation from other considerations. From such data it is possible to infer "diagnostic" item interpretations and also to build up more general concepts regarding the essential social maturity differences between the normal and the feeble-minded.

When the data of Table 9A are rearranged in order of item-number sequences (from Item 14 to Item 75), there is found (a) a concentration of four items from SA years V to VI which are relatively difficult for the feeble-minded, and (b) a concentration of two items from SA years VII and VIII which are relatively easy for the feeble-minded (disregarding items which tend to neutralize each other at other points). This leads to some distortion of total scores which is concentrated at SA year V. While technically intriguing, a more detailed exposition of argument and calculations is omitted since the ultimate effects prove to be of little practical significance.

Influence of LA on item performance. We now face the question of the specific influence of LA on item performance for the feeble-minded subjects. A number of different techniques (e.g., chi-square and biserial r) for such analysis were explored, but none proved satisfactory in view of the relatively small number and uneven distribution of subjects in relation to the wide distribution of ages. Careful inspection of the original master sheet tabulations of item performances revealed little significant influence of LA beyond MA. More precise techniques revealed only the sampling idiosyncrasies of individual performances. When performances on particular items were tabulated in relation to both SA and LA no significantly stable results were found. The most promising analysis was based on the per cents of passes for the ten younger vs. the ten older subjects in the SA groups within which the central item performance occurred. Here again the number of S's was so small that the percentages were undependable in relation to simple individual differences and the wide spread of LA. Some items showed slight advantage for the older subjects and a corresponding compensating number showed advantages for the younger subjects. But the data were not considered statistically dependable.

As will appear elsewhere, there is no substantial correlation between LA and SA for these feeble-minded subjects after LA 15 years. Since most of our subjects were over 15 years of age, it may be reasoned that the SA's are substantially stable. It is, of course, possible that this stability is achieved within a certain amount of item variability, that is, as some items are gained some others are lost with ascending LA. The best prospect for predicting item improvement is increase in SA rather than in LA, as is evident from the SA item graphs for feeble-minded subjects. But since there is little probability of SA improvement after LA 15 to 20 there is likewise little prospect of item improvement except as gains are offset by losses. For purposes of predicting the likelihood of future (emergent) item success these data offer no substantial evidence. It is possible that growth study in item analysis performance might yield such evidence, but such treatment of the data already gathered has not yet been made with sufficient thoroughness to warrant comment here.

We may note again that the LA's of these feeble-minded subjects are always higher than the LA's of the normative subjects in respect to particular item performances. Obviously, where feeble-minded item performance (by SA) is *earlier* than normative performance (by LA), the general advantage of LA will be an obvious, but not the only reason. Since some items are significantly *later* in SA versus LA maturation, the influences added to LA alone are difficult to isolate.

It is evident that the feeble-minded subjects have some advantage in some categories and the normal subjects in other categories, but this is not altogether consistent for comparable items within these categories. For example, four of the six items which are significantly "easier" for the feeble-minded subjects are in the Self-Help categories, while five of the nine items which are "harder" (i.e., easier for normals) are in the Communication category. More generally, from subjective impression, it appears that the items in the Self-Help categories and in the lower stages of Occupation and Locomotion are easier for the feeble-minded subjects, while the remaining categories (Communication, Self-Direction, Socialization, and the higher stages of Occupation and Locomotion) are easier for the normal subjects. These last observations are supported by the fragmentary data beyond SA 12 not statistically considered in this chapter.

Types of scores. The practicability of the Scale with feeble-minded subjects may be considered with reference to its use under institutional conditions. This problem has been anticipated previously from the standpoint of both examinational and environmental influences affecting the types of scores to be assigned to the items of the Scale. The assumptions and evidence for normal subjects in the ordinary environment may now be supplemented for subnormal subjects in a specialized environment. For this purpose we have tabulated the types of scores for the item-analysis sample of 240 subjects. These data are presented in the right-hand columns of Table 10. All item scores for this sample have been segregated in the categories noted at the top of the table. We are here particularly concerned with: (1) the influence of environmental opportunity and restraint from the standpoint of institutional regimen, (2) the influence of pre-institutional item performance, (3) the adequacy of the informant, and (4) the emergent item successes.

The results of this evaluation are self-evident from the data in Table 10. (Note that these "item-analysis subjects" are all below SA 12 and LA 42 as in Table 8A.) It is difficult to offer a comprehensive evaluation of these data, but perhaps the following comments are specially pertinent. They

TABLE 10

TYPES OF SCORES FOR NORMAL VS. FEEBLE-MINDED SUBJECTS

Item No.	NORMAL N = 620					FEEBLE-MINDED (Item-Analysis Sample) N = 240							
	+	±	+NO	+F	−	+	±	+NO	+F	+NI	−NO	−NI	−
1	614	2			4	233	1						6
2	615				5	240							0
3	614				6	230							10
4	614				6	219							21
5	614				6	240							0
6	613				7	226							14
7	611	1			8	219							21
8	611				9	240							0
9	609				11	238							2
10	609				11	211							29
11	609				11	229	1						10
12	607	1			12	239							1
13	607				13	213	1						26
14	605	2			13	213							27
15	603				17	240							0
16	602				18	223							17
17	600	3			17	216	1						23
18	599	1			20	216		1					23
19	598				22	200				3			37
20	597	2			21	211	2						27
21	597	1			22	209							31
22	595	2			23	203							37
23	593	2			25	210	7						23
24	591	3			26	205							35
25	591	2			27	200	1						29
26	590	3			27	238							2
27	587	6			27	200	2						38
28	589	1			30	211							29
29	587	1			32	208							32
30	587				33	207				1		1	21
31	586				34	197							43
32	585				35	224				1			15
33	582		1		37	199	1	2		1	1		36
34	580				40	186							54
35	577	7			36	196	3						41
36	577	5			38	193	1						46
37	576	6			38	204	1						35
38	571	4			45	173	1	2		3	2	1	58
39	571	1			48	201							39
40	564	8			48	179	1						60
41	560	6			54	193	2						45
42	562	2			56	191							49
43	561	1	1		57	160		5		3	11		61
44	556	2			62	159							81
45	553	5			62	192	6			1		1	40
46	551	7			62	169	4		2	2			63
47	552	2			66	178	1	1					60
48	545	8			67	169	5	1					65
49	540	10			70	189	2		2			1	47
50	536	15			69	157	4						79
51	541	5			74	179	3						58
52	521	12			87	144	6						90
53	523	2	1		94	140		11			8	1	80
54	518	10	1		91	162	4						74
55	515	5			100	123	3		2	7		4	111
56	514	5			101	107	6		2	4		2	119
57	513	6	1		100	95	1	1	5	8	2	5	123
58	515	1			104	106				1	1		132
59	506	3			111	86	4	1		1			148

(*Cont'd. p.* 410)

TABLE 10 (cont'd)

TYPES OF SCORES FOR NORMAL VS. FEEBLE-MINDED SUBJECTS

Item No.	NORMAL N =620					FEEBLE-MINDED (Item-Analysis Sample) N =240							
	+	±	+NO	+F	−	+	±	+NO	+F	+NI	−NO	−NI	−
60	501	5			114	30	1	57	3		36		113
61	503	1			116	81	1	30	1		28		99
62	486	25	1		108	139	1	5		7	4	3	81
63	497				123	77				1		1	161
64	493	5			122	122	3	1			4		110
65	482	6			132	107	4	4			12		113
66	473	4			143	69	1			2		3	165
67	455	6	1		158	124	4	1		7	3	2	99
68	448	13			159	91				7		5	137
69	449	11			160	66	2			2		1	167
70	447	7	1		165	111	5		2				124
71	442	16			162	85	4						151
72	430	18			172	114	2						124
73	443	12			165	38	2			1		1	198
74	440	6			174	86	1	4			1		148
75	436	5	1		178	110	2	2		3	1	3	119
76	430	5			185	12	1	18		1	17	3	186
77	429	3			188	1		24	2		33	1	174
78	425	5			190	50	1		7				189
79	409	5	4		202	1		26			29		184
80	389	26			205	36	5	1				1	197
81	387	12	1	2	218	7				2		3	227
82	374	42			204	35	2		1				203
83	380	17	6		217	8	1	25			10	1	195
84	383	11			226	8							232
85	352	44			224	13							227
86	363	19			238	54	3						183
87	348	22			250	3		5			15	1	215
88	322	32			266	5		2	1				233
89	315	24			281	22							217
90	300	28		7	285	1			1			1	238
91	302	20			298	0							240
92	298	10			312	0		10			10		220
93	295	5			320	0		11		1	5		223
94	285	10			325	0		6			5		229
95	266	8			346	0		1			4		235
96	254	7			359	1		4			6		229
97	241	17			362	1		7			1		231
98	236	14		3	367	0		2			3		235
99	243	6			371	0		5			2		233
100	213	4	3	6	394	0		1			2		237
101	206	4			410	0		1					239
102	184	21	3	1	411	0					1		239
103	184	18		2	416	0							240
104	95	33			492								
105	72	55		1	492								
106	87	1		12	520								
107	56	76			488								
108	33	40			547								
109	29	35			556								
110	17	8			595								
111	13	1		1	605								
112	1	4			615								
113	3				617								
114	2				618								
115	0				620								
116	0				620								
117	0				620								

suggest that if an item is passed by at least one S (and *a fortiori* if passed by more) this indicates minimum practicability, with additional successes indicating the extent to which aptitude surmounts lack of environmental opportunity, or makes examining feasible.

1. Prior to Item 103 only one item, Item 91 (Follows current events), shows total failure for this sample of subjects. Items 77, 79, 90, 96 and 97 each show one full success; Item 87 shows three full successes, Item 88 five, Item 81 seven, and Items 83 and 84 eight. All other items show at least twelve full plus scores; that is, they are passed by at least 5 per cent of the 240 subjects.

2. In general the number of ± scores is negligible for all items. The maximum number of such scores is 7 for any given item, which suggests that the item performances of institutionalized feeble-minded subjects are predominantly well established rather than emergent, and readily subject to assured scoring. It may be inferred that this is so because of the age factor which has given each subject ample opportunity to demonstrate either complete success or complete failure on practically all items.

3. The NO scores reflect limited opportunity which is partly due to environmental regulation and partly due to limited occasion for the exercise of the performances in question. As might be expected, institutional regimen restricts the expression of performance on certain items because of the hazards involved either to the child or to the institution as the responsible foster parent. It should be recalled in the evaluation of NO scores for institutionalized mentally deficient subjects that *for the most part the environmental restrictions leading to such scores have been imposed because of the presumptive inability of the person to perform such items without significant hazard (if indeed such inability has not already been demonstrated prior to commitment) and that the subject's mental condition requires protection in respect to such hazards.* While there may be occasional surreptitious success for some subjects on restricted items, such performance has not been recognized as habitual or emergent but rather as +NO. Nevertheless the number revealing significant frequencies in +NO scores is much smaller than might have been anticipated. Only Items 60, 61, 77, 79, and 83 have more than twenty +NO scores (8 per cent of all S's for each of 5 items), and only one of these, Item 60 (Is trusted with money), shows more than thirty such scores. It is evident from Table 10

that —NO scores have not always been assigned, but in general the distinction between —NO and straight minus scores implies that the restriction of opportunity is irrelevant to successful performance. Note that +NO scoring is a device to mitigate minus scoring and generally "favors" the S as a more generous appraisal.

4. It appears that on some items, notably Item 53 (Goes about neighborhood [or unrestricted areas] unattended) and Item 61 (Goes to school [or work] unattended), in respect to which this environment poses definite restrictions, the scoring has been somewhat liberally construed to offset these restrictions, since both of these items show a larger number of plus scores than seems warranted by the presumptive situation. On such more advanced items as Item 92 (Goes to nearby [or off-grounds] places alone) and Item 93 (Goes out unsupervised daytime) there is a presumption of somewhat indulgent +NO scoring.

5. The maximum number of +F successes is 7, for Item 77 (Goes about home town freely), suggesting that inability rather than institutional restriction was the major cause of item failure.

6. Similarly the NI scores are limited in number, with a maximum of 8 +NI scores and 5 —NI scores on Item 57 (Uses skates, sled, wagon). Seven +NI scores occurred on each of Items 55, 62, 67, and 68. The nature of these items shows that NI scores do not represent evasion in relation to environmental limitations.

In general the conclusion seems justified from the data of Table 10 that neither institutional restrictions nor inadequacy of informants or examining materially influenced the applicability of the Scale with these institutionalized feeble-minded subjects.

Scattering. In the normative standardization it was anticipated (p. 384) that the range of scatter (spread of items between the all-continuous pluses and the all-continuous minuses) might be of some significance. The normative range of scatter was given in Table 6.

Table 11 shows the corresponding range of scatter for the item-analysis sample of 240 institutionalized mentally deficient subjects, all data being based on individual performances. This table requires little comment except to note that the basal scores (the highest of the continuous pluses) are somewhat below those for the normative subjects, and the highest plus scores are somewhat above those for the normative subjects, with consequently larger numbers of plus scores in the intermediate ranges.

TABLE 11

"SCATTERING" ON POINT SCORES BY SOCIAL AGE FOR FEEBLE-MINDED SUBJECTS*

(Item-Analysis Sample)

N=20 at each SA; T=240

SA Year	Mean LA	Basal Score		Top Score		Active Range		Averages			Normal Averages		
		Low	High	Low	High	Low	High	Base	Top	Range	Base	Top	Range
0	17.4	0	9	18	45	15	45	2	31	29	7	10	4
1	13.9	1	30	31	45	9	44	10	40	31	21	33	12
2	16.3	9	39	45	58	10	43	27	51	24	34	48	14
3	16.0	18	49	49	67	5	48	36	55	20	40	54	14
4	14.0	28	51	54	75	5	36	43	64	20	47	58	11
5	20.1	37	55	57	82	2	35	48	71	23	53	67	14
6	24.1	33	57	69	89	13	53	53	75	22	57	69	12
7	22.8	45	59	70	86	15	32	55	76	21	62	74	13
8	22.9	52	67	75	86	11	32	58	80	23	64	79	15
9	25.7	48	70	78	89	14	37	60	85	25	67	83	16
10	29.8	57	76	81	90	6	29	70	87	17	72	84	12
11	25.3	62	80	78	98	6	27	75	88	14	78	88	10

* *Cf. Table 6.*

The range of active tests is generally nearly twice that of the normative group. This observation, in conjunction with the evidence on differential item difficulty, may be useful in the diagnosis of mental deficiency. It may be assumed that other types of handicapped subjects might show other degrees of scatter and other differences in differential item difficulty.

11

Scale Validation with V. T. S. Subjects

No man can change the common lot to rare. —Thomas Hardy

Analysis of total scores. For the normal subjects life age was employed as the criterion of development without reference to other variables on the assumption that social maturation is a consequence of the complex of influences related to age in varying degrees. Level of intelligence, apparently the most important single variable, may be considered such an influence. With mentally deficient subjects the *disparity* of development in relation to normative life age expectation becomes a criterion of their condition, and the degree of developmental retardation becomes a measure of the grade of mental deficiency.

Many studies have supported the hypothesis that mental deficiency represents a constitutional tendency toward infantility, or a generalized hypoplasia, especially of the central nervous system, with social and mental incompetence as the major behavioral manifestations. The correlation of developmental characteristics varies unequally for different aspects of development, with more dependence upon age for some traits and less for others. Among these, intellectual development as measured by the Binet-Simon scale or its equivalents has heretofore afforded the most practicable single index of mental deficiency and its degrees, as well as many of its constitutional preconditions and expressive manifestations (Doll, 1946a).

The dependence of social maturation upon intellectual maturation is implicit in the measurement of social competence. And since both are dependent upon life age we now examine these relationships. For this purpose we have employed the total population of mentally deficient subjects in residence at The Training School at Vineland, N. J.

Collection of data. The Social Maturity Scale has been routinely employed since 1936 for the continuing examination of all "children" in residence. A systematic program of annual re-examination has also been in effect as a longitudinal growth study (see p. 462). For validation purposes an evaluation of this population is now presented based on all children in residence for the year 1940. In a few instances where adequate examinations were not available for subjects then in residence (recent admissions or discharges) the data have been taken as of the year 1939 or 1941. All examinations were made by the standard procedure by experienced examiners at the Vineland Laboratory employing well-informed attendants and cottage supervisors as single informants.

These subjects have also been continuously examined with the 1916 Stanford revision of the Binet-Simon scale. The MA's herewith are of dates which are identical with or approximate to the dates for the corresponding social maturity scores. In a few instances the mental scores are of somewhat more remote dates, but all such mental ages are known to be substantially stable and are confined to subjects well above the ordinary expectation of mental age change.

All these data were first reviewed for clerical accuracy. The population was then culled for special conditions in addition to feeble-mindedness which might significantly affect either the mental-age or the social-age scores. These complications included mental disturbance, convulsive disorders, senescent deterioration, crippling, visual defect, auditory defect, aphasia, where these were of sufficient severity to influence the social age scores in addition to the effects of mental deficiency. Likewise those members of the population classified as mentally dull-normal, borderline normal, deferred diagnosis, constitutional inferior, were excluded in order that the population might consist of only genuinely feeble-minded subjects according to competent symptom-complex clinical diagnoses. Ten subjects were excluded because of insufficient data due to brief residence or incomplete examining.

This "purging" of subjects yielded a sample of 431 mentally deficient subjects free from the conditions just noted, and 118 subjects representing special conditions in addition to mental deficiency or diagnoses as not feeble-minded. We now proceed to an analysis of this total population, first considering the 431 uncomplicated feeble-minded subjects, and subsequently considering those with special conditions and the non-feeble-minded. It may be noted that the uncomplicated subjects include all the degrees and clinical varieties of mental deficiency present in the population as otherwise described (p. 390) as well as the total age range of the population.

Influence of life age and mental age. It is generally agreed that *social* insufficiency is prerequisite to the recognition of mental deficiency. But in actual practice the diagnosis is generally determined on the basis of the *mental* insufficiency with social insufficiency either implicitly assumed or thereby accounted for. It is therefore somewhat unusual for a diagnosis of feeble-mindedness to be reached in the absence of serious mental retardation even though under certain circumstances potential feeble-mindedness may be diagnosed prior to the age at which significant mental retardation is evident. Since mental deficiency is a condition which obtains at maturity, all diagnoses prior to maturity are prognostic or predictive. Not all feeble-minded persons are institutionalized as feeble-minded either before or after maturity. In general those admitted to institutions reflect the more serious degrees of mental and social inadequacy associated with "plus factors" such as dependency, maladjustment, physical handicap, and so on.

For these reasons serious mental retardation is usually the major selective variable for an institutional population and social age is the dependent or functional variable. It is important that these selective versus functional influences be not disregarded in the evaluation of mutually related data.

A further consideration has to do with the differences in the maturational ceilings for mental age and social age as measured by the scales here employed. The normative adult ceiling for the 1916 Stanford Binet-Simon scale is most evidently fourteen years (Doll, 1921), although some authorities employ fifteen or sixteen years as this ceiling. But the normative adult ceiling for the Social Scale is twenty-five years. This suggests that the average normal *social capitalization* of intelligence continues for a period of about ten years after the average ceiling (as measured by 1916 Binet) is attained (cf. p. 375). This difference in maturational ceilings for the two scales suggests that we evaluate the comparative results with feeble-minded subjects in terms of three major life age periods, namely, from birth to thirteen years inclusive, from fourteen years to twenty-four years inclusive, and from twenty-five years forward.

The preponderence of evidence shows that the rates of mental growth progressively decline for feeble-minded subjects in the later years of their mental maturation. Hence their IQ's tend to decrease with increase of life age. This decrease in

TABLE 12

DISTRIBUTION OF LA AND MA
VTS Total Population

Life Age	MENTAL AGE 0-.9	1.0	2	3	4	5	6	7	8	9	10	11	12	
						Table 12-C; LA 25+								T
65				1			1	2		1				5
60					1	1	2	1						5
55		1		1		4		2	1	2	1	1		13
50						2		3	3	2	1		2	13
45				1	4	3	1	3	1		2	1		16
40	1			2	3	1	4	4	4			1	1	21
35	1		2	2	6	4	8	3	8	3	1			38
30				1	4	5	6	12	2	3	1	2		36
25			3	2	7	5	8	11	7	3				46
T	2	1	5	10	25	25	30	41	26	14	6	5	3	193
Mdn. LA=31.9; MA=7.0										r=.096; PE=.048				
						Table 12-B; LA 14-24								
24					1	3		4	1				1	10
23			1	2		1	1	2	3	1				11
22								4	2	1				7
21		1			2		1	3		1	2	1		11
20					3	1	2	1	4	3	2	1		17
19					3	3	3	3	2	3	3			20
18			1	2	1	5	1	2	3	2		1		18
17						4	2	6	2	4		1		19
16			1			2	4	3	5	1		2		18
15			1			2	3	1	6	2	3			18
14				3	1	3	6	1	4	2	1			21
T	0	1	4	7	11	24	23	30	32	20	11	6	1	170
Mdn. LA=18.5; MA=7.5										r= −.006; PE=.052				
						Table 12-A; LA 14−								
13			1		3	3	4	3	1	2				17
12				1	1	5	2	2		2				13
11			2	3		8								13
10					1	2	4	2						9
9				1	1	1		2						5
8			1		1	2								4
7			1	3	1									5
6.0		2												2
T	0	2	5	8	8	21	10	9	1	4	0	0	0	68
Mdn. LA=11.7; MA=5.5										r=.489; PE=.062				
GT	2	4	14	25	44	70	63	80	59	38	17	11	4	431

IQ is related to "final mental age" (Doll, 1921) which in turn is related to life age (average adult ceiling being about 6 years for low-grade idiots and about 14 years for high-grade morons). Our growth studies of feeble-minded subjects (cf. pp. 431, 462, 543) reveal similar trends in social maturation and this will to some extent be evident from the immediately following tabulations. But whereas among normal subjects the average SA continues to increase for ten years after the average MA ceiling has been attained, among feeble-minded subjects there is relatively little increase in SA after MA reaches its final limit. Consequently, although the final SA's of feeble-minded subjects tend to exceed their corresponding final

MA's they do so by less than is the case with normal subjects. Therefore the SQ's of feeble-minded subjects tend to fall below their related IQ's after LA 14 years, while among normal subjects SQ's and IQ's tend to remain similar.

In order to evaluate these differences it is necessary to consider the SA-MA relationship according to their comparative bases. To explore the evidence we have accordingly grouped our subjects by the age periods which correspond to normal expectation for mental and social maturation.

Assuming mental age in relation to life age as the major selective variable for the immediate subject sample, we present the distributions of mental age by life age in Tables 12-A, 12-B and 12-C for the life age intervals under 14 years, 14 to 24 years, and 25+ years respectively.

From Table 12-A (LA 14 —) we note a tendency toward positive selective relationship between life age and mental age ($r = .49$, PE .06). The median LA is 11.7 years, and the median MA 5.5 years. The minimum life age of these subjects is 6 years and the mental age range is from 1 to 9 years, with median MA retardation of 6.2 years.

Table 12-B (LA 14-24) reveals no selective tendency toward correlation ($r = -.01$). The median LA is 18.5 years and the median MA 7.5 years. The mental age distribution is from 1 to 12 years with median retardation of 6.5 years (considering 14.0 years as the normative adult ceiling).

Table 12-C (LA 25+) reveals no selective progression for mental age on life age ($r = .10$). The median LA is 31.9 years, the median MA 7.0 years, and the median mental retardation 7.0 years. The mental age range is from less than 1 year to 12.9 years, and the life age distribution extends to 69 years.

The distributions of SA by LA for the three corresponding age periods are presented in Tables 13-A, 13-B and 13-C. These tables reveal both a selective and a functional relationship. For purposes of analysis we may assume that the selective relationship is reducible to mental age as a base, and that the functional relationship is due to the dependence of social age on mental age. The influence of mental age may then be controlled by partial correlation to reveal the non-selective relation of LA to SA.

TABLE 13
DISTRIBUTION OF LA AND SA
VTS Total Population

Life Age	SOCIAL AGE 0	1.0	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	T
Table 13-C; LA 25+																			
65						1	1		1			2							5
60						2	2				1								5
55		1			1	2	1	1	2		2	1		1			1		13
50							1	2	2	4	2	1			1				13
45						4	3	3	2		1	1			2				16
40		1			2	2	1	3	2	4	4	1		1					21
35		1		1	3	3	5	8	4	5	3	4					1		38
30			1		1	3	5	8	5	3	5	2	2					1	36
25			1		4	4	4	6	11	6	6	2	2						46
T	0	3	2	1	11	21	23	31	29	22	24	14	4	2	3	0	2	1	193
Mdn. LA=31.9; SA=8.2														r=.035; PE=.049 r_t=−.051					
Table 13-B; LA 14-24																			
24						3		2	1	2	1		1						10
23			1	1		1		4	1			2	1						11
22								1		2	2	2							7
21		1				1	1	2	1	1	1				2	1			11
20				1		1	1	1	2	3	4		2	1	1				17
19					2	2	1	1	5	1	3	2	2		1				20
18			1	2		1	3	3	1	1	5		1						18
17				1	1	2	4	2	3	2	2	2							19
16			1			1	4	2	3	4	2	1							18
15				1		2	2	2	1	6	4								18
14				1	3	2	4	4	4	2	1								21
T	0	1	3	7	6	16	20	24	22	24	25	9	7	1	4	1	0	0	170
Mdn. LA=18.5; SA=8.4														r=.168; PE=.037 r_t=.310					
Table 13-A; LA 14—																			
13			1		4	2	4	4	2										17
12				1		4	2	3	1	2									13
11			1	4	3	4	1												13
10					3		2	2	2										9
9					1	1		2	1										5
8			1		2	1													4
7		1		2	2														5
6.0			2																2
T	0	1	5	7	15	12	9	11	6	2	0	0	0	0	0	0	0	0	68
Mdn. LA=11.7; SA=5.5														r=.409; PE=.067 r_t=−.025					
GT	0	5	10	15	32	49	52	66	57	48	49	23	11	3	7	1	2	1	431

From Table 13-A (LA 14—) we note a correlation of $r = .41$, but this is reduced to $r = —.03$ when the influence of mental age on both terms for the same age period is controlled. Hence it appears that the apparent dependence of social age on life age for these subjects is closely related to the dependence of social age on mental age and mental age on life age. The social age scores range from 1 to 9 years, with median LA at 11.7 years, median SA at 5.5 years, and median SA retardation of 6.2 years, both these latter figures being the same as for mental age for this age period.

From Table 13-B (LA 14-24) we note comparatively low correlation between SA and LA ($r = .17$). This correlation is raised to $r = .31$ when the influence of LA on MA and of MA on SA is controlled. Hence there is evident a positive but low tendency for SA to increase with LA during the period of 14 to 24 years, within which period no such relationship is found in the LA-MA distribution. The SA range is from 1 to 15 years, with median LA at 18.5 years, median SA at 8.4 years, and median retardation at 10.1 years.

From Table 13-C (LA 25+) we observe a correlation of $r = .04$ between LA and SA, which is reduced to $r = -.05$ when the influence of MA on LA and of MA on SA is controlled. This suggests that with the sample statistically controlled for MA there is no increase of SA with LA above 25.0 years, nor is there any evident deterioration at the upper ends of the correlation distribution. The SA range is from 1 to 17 years, with median LA at 31.9 years, median SA at 8.2 years and median retardation at 16.8 years, considering 25.0 years as the normative adult SA ceiling.

The SA-MA relationships for the three age periods are presented in Tables 14-A, 14-B and 14-C.

For the S's under LA 14 years (Table 14-A) the SA-MA correlation is $r = .86$, which is reduced to $r = .83$ when the influence of LA of both terms is controlled. The median MA is 5.5 years, the median SA 5.5 years, median SA-MA difference 0 years (median LA 11.7 years).

For LA's 14 to 24 (Table 14-B) the SA-MA correlation is $r = .83$, which becomes $r = .84$ when controlled for the influence of LA on both terms. The median MA is 7.5 years, median SA 8.4 years, median SA-MA difference .9 years in favor of SA (median LA 18.5 years).

For LA's 25+ (Table 14-C) the SA-MA correlation is is $r = .726$ which becomes $r = .724$ when controlled for the influence of LA on both terms. The median MA for this age period is 7.0 years, median SA 8.2 years, median SA-MA difference 1.2 years in favor of SA (median LA 31.9 years).

The SA-MA correlation distribution for the total sample of 431 subjects is presented in Table 15. The correlation coefficient for this distribution is $r = .84$. In view of the lack of relationship between LA and MA, and LA and SA, except for the relatively small group of subjects under LA 14 years, and the consequently non-rectilinear distribution, it is impracticable to correct for the influence of LA on both terms.

However, it is evident that the effect of such correction would be negligible.

TABLE 14

DISTRIBUTION OF MA AND SA
VTS Total Population

Mental Age	SOCIAL AGE 0	1.0	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	T
Table 14-C; LA 25+																			
12											1			1	1				3
11									1			1	1	1				1	5
10										1	2				2		1		6
9									1	3	2	5	2				1		14
8								4	2	8	8	3	1						26
7						1	1	6	14	6	9	4							41
6						2	5	6	11	3	2	1							30
5						7	7	10		1									25
4				1	4	8	8	4											25
3			1		4	2	2	1											10
2			1		3	1													5
1.0		1																	1
0-.9		2																	2
T	0	3	2	1	11	21	23	31	29	22	24	14	4	2	3	0	2	1	193
Mdn. MA=7.0; SA=8.2														r=.726; PE=.023 rt=.724; PE=.023					
Table 14-B; LA 14-24																			
12													1						1
11										1	3		1			1			6
10									2	1	2	1	1	1	3				11
9									2	8	3	3	4						20
8							1	3	6	6	12	3			1				32
7						1	4	9	5	5	4	2							30
6						3	6	7	3	3	1								23
5				1	2	6	6	5	4										24
4				1	2	5	3												11
3			2	2	2	1													7
2			1	3															4
1.0		1																	1
T	0	1	3	7	6	16	20	24	22	24	25	9	7	1	4	1	0	0	170
Mdn. MA=7.5; SA=8.4														r=.830; PE=.016 rt=.841; PE=.015					
Table 14-A; LA 14—																			
9								1	2	1									4
8									1										1
7							2	4	2	1									9
6					2	2	2	3	1										10
5				1	5	8	4	3											21
4					5	2	1												8
3				5	3														8
2		1	3	1															5
1.0			2																2
T	0	1	5	7	15	12	9	11	6	2	0	0	0	0	0	0	0	0	68
Mdn. MA=5.5; SA=5.5														r=.858; PE=.022 rt=.828; PE=.026					
GT	0	5	10	15	32	49	52	66	57	48	49	23	11	3	7	1	2	1	431

From Table 15 we may make the following observations:

a. The maximum SA attained by the feeble-minded subjects of this sample was 17 years and the maximum MA 12 years.

b. Only 4 subjects attained social ages above 14 years, and only 4 attained mental ages above 11 years.

c. The median MA is 7.0 years, median SA 7.8 years, median SA-MA difference .8 years (cf. later section for analysis of SA-MA differences).

d. Although the SA-MA correlation is high, this is partly the result of the range of distribution for both terms. It is noted that there is considerable dispersion within the columns and the rows. Hence the prediction of one term from the other involves a considerable range of error; e.g., the social ages for these data at MA 6 years range from SA 4 years to SA 11 years, inclusive, with the most probable expectancy at SA 7 years plus or minus 1 year. Similarly, the most probable expectancy for MA from SA 7 years is MA 6 years, plus or minus 1 year. Considering the nature of the data and the problem of related variables, it seems for the moment inadvisable to apply the usual statistical methods for estimating one term from the other. Another phase of this problem is discussed in the section on SA-MA differences.

TABLE 15

DISTRIBUTION OF MA AND SA
VTS Total Population
(LA's Combined)

Mental Age	SOCIAL AGE																		
	0	1.0	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	T
12											1		1	1	1				4
11									1	1	3	1	2	1		1		1	11
10									2	2	4	1	1	1	5		1		17
9								1	5	12	5	8	6				1		38
8							1	7	9	14	20	6	1		1				59
7						2	7	19	21	12	13	6							80
6					2	7	13	16	15	6	3	1							63
5				2	7	21	17	18	4	1									70
4				2	11	15	12	4											44
3			3	7	9	3	2	1											25
2		1	5	4	3	1													14
1.0		2	2																4
0-.9		2																	2
T	0	5	10	15	32	49	52	66	57	48	49	23	11	3	7	1	2	1	431

Median MA =7.0; SA =7.8 r =.842; PE =.009

In presenting these comparisons of SA and MA and the subsequent comparisons of SQ and IQ the reader is again cautioned regarding selective versus functional relationship and the hazards of the non-equivalence of scores in terms of sampling, central tendencies, deviation values, and ceilings, both normative and differential. These cautions apply particularly to the restricted sample in Chapter 10, but the sample in this chapter is also somewhat artificially selective (in terms of institutional policies and other exigencies).

Hence the statistical procedures employed are dubiously appropriate, and conventional interpretation is consequently uncertain. Although resorting to these treatments of data, we deprecate their uncritical acceptance. It were better perhaps to deal with simpler manipulations of contingent relationships such as percentage probabilities of the raw data. The sophisticated earnest reader may do this from the direct arrays, making such calculations as will best serve his own purposes.

Quotient scores. The above analysis may be repeated in terms of quotient scores (SQ and IQ) in place of age scores

TABLE 16

DISTRIBUTION OF LA AND IQ
VTS Total Population

Life Age	INTELLIGENCE QUOTIENT																	
	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	30	85	T
Table 16-C; LA 25+																		
65					1				1	2				1				5
60						1	1		2	1								5
55		1		1			1	3		1	2		2	1		1		13
50							1	1		3	2	1	2		1		2	13
45					2	3	2	1	1	3		1		1	1	1		16
40	1			2		3		2	3	2	3	3				1	1	21
35	1		2		3	5	4		8	3	6	2	2	2				38
30				1		4	3	4	4	5	8	1	3		1	1	1	36
25			2	1	4	5	4	4	5	9	8	1	1	2				46
T	2	1	4	5	10	21	16	15	24	29	29	9	10	7	3	4	4	193
Mdn. LA =31.9; IQ =48.8													r =.102; PE =.048					
Table 16-B; LA 14-24																		
24					1		3			3	1	1					1	10
23				1	2		1	1		2	1	2	1					11
22										1	4	1	1					7
21		1				2			1	2	1		1	1	1	1		11
20						3		1	2		2	3	1	3	1	1		17
19					1	2	2	1	3	1	2	2	1	4	1			20
18			1	2		1	3	2	1		3	2	1	1		1		18
17							3	1	2	4	3	1	3	1	1			19
16		1						4	2	3	1	4	1		2			18
15			1				2	2	1	1		7	1	3				18
14				2	1	1	3	3	3		4	1	2		1			21
T	0	2	2	5	5	9	17	15	15	17	22	24	13	13	7	3	1	170
Mdn. LA =18.5; IQ =54.4													r =.019; PE =.052					
Table 16-A; LA 14—																		
13			1			3		3	4	1	2	1	2					17
12					1	1	1	4		1	2	1		1	1			13
11			1	1	2	1		1	4	3								13
10								1		2		4	2					9
9								1		1	1				2			5
8					1				1			1	1					4
7					1			1	1	2								5
6							1	1										2
T	0	0	2	2	6	5	1	11	10	10	5	7	5	1	3	0	0	68
Mdn. LA =11.7; IQ =48.5													r =.008; PE =.082					
GT	2	3	8	12	21	35	34	41	49	56	56	40	28	21	13	7	5	431

(SA and MA). This involves the relation of life age to both quotient scores and the relation of the quotient scores to each other. In comparison with the previous analysis, IQ instead of MA is now the selective variable and SQ instead of SA the dependent variable. The same major life age periods are employed in relation to the normative adult ceilings for the two scales, IQ's being calculated at a 14-year ceiling and SQ's at a 25-year ceiling.

The selective relation of LA to IQ for subjects under LA 14 years is presented in Table 16-A. The correlation coefficient is $r = .01$. The range of IQ's is from 15 to 79, with median LA at 11.7 years and median IQ at 48.5.

The distribution of LA and IQ for LA's 14 to 24 years is presented in Table 16-B. The correlation coefficient is $r = .02$. The range of IQ's is from 10 to 89, with median LA at 18.5 years and median IQ at 54.4.

The LA-IQ distribution for LA's 25+ years is presented in Table 16-C. The correlation coefficient is $r = .10$. The IQ range is from 5 to 89, with median LA at 31.9 years and median IQ at 48.8.

The LA-SQ distribution for LA's under 14 years is presented in Table 17-A. The correlation coefficient is $r = -.12$. When controlled for the influence of LA on IQ, and IQ on SQ, this becomes $r = -.23$. The SQ range is from 15 to 84, with median LA at 11.7 and median SQ at 48.5.

The LA-SQ distribution for LA's 14 to 24 years is presented in Table 17-B. The coefficient of correlation is $r = -.25$. When controlled for the influence of LA on IQ, and of IQ on SQ, this becomes $r = -.45$. This indicates a tendency for SQ to decrease with increase of age because of the relatively small increase of SA with LA after LA 14 years (cf. Table 13-B) in relation to the normative ceiling of 25 years. The range of SQ is from 5 to 79, with median LA at 18.5 years and median SQ at 46.2.

The LA-SQ distribution for LA's 25+ years is presented in Table 17-C. The correlation coefficient is $r = .03$, which is reduced to $r = -.10$ when controlled for the influence of LA on IQ, and of IQ on SQ. The SQ range is from 5 to 69, with median LA at 31.9 years and median SQ at 32.5.

The distribution of IQ and SQ for LA's under 14 years is presented in Table 18-A. The correlation coefficient is $r = .83$, which is increased to $r = .84$ when controlled for influence of LA on both terms. The median IQ is 48.5 and median SQ 48.5, median IQ-SQ difference 0.

TABLE 17

DISTRIBUTION OF LA AND SQ

VTS Total Population

Life Age	SOCIAL QUOTIENT 5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	T
Table 17-C; LA 25+																	
65				1	1	1		1	1								5
60				2	2			1									5
55	1		1	2	1	3		2	1	1			1				13
50					2	3	4	2	1		1						13
45				6	3	3		2			2						16
40	1		1	3	1	4	5	4	1	1							21
35	1	1	3	4	8	7	6	4	3				1				38
30		1	1	5	7	6	6	6	2	1			1				36
25		1	4	4	7	8	12	7	2	1							46
T	3	3	10	27	32	35	33	29	11	4	3	0	3	0	0	0	193
Mdn. LA =31.9; SQ =32.5													$r=.027$; PE =.049 $r_t=-.103$; PE =.048				
Table 17-B; LA 14-24																	
24				3		2	3		1	1							10
23		2		1		4	1		1	2							11
22						1		2	2	2							7
21	1				1	2	2	1	1				1	1	1		11
20			1		1	1	2	1	3	4		2	2				17
19				2	2	1	1	3	3	2	3	1	1		1		20
18			3			2	2	3	1	2	4			1			18
17				1	1	3	2	3	3	2		2	2				19
16			1			1		5	1	3	2	4	1				18
15				1			2	2	2		3	4	3	1			18
14					1	4	1	1	3	3	5	1	2				21
T	1	2	5	8	6	21	16	21	21	21	17	14	12	3	2	0	170
Mdn. LA =18.5; SQ =46.2													$r=-.252$; PE =.049 $r_t=-.445$; PE =.042				
Table 17-A; LA 14−																	
13			1			2	2	2	4	1	3	2					17
12						1		2	2	1	4	1		1	1		13
11					2	3	2	1	3	1		1					13
10								3			1	1	1	2	1		9
9								1			1			1		2	5
8						1				1	1		1				4
7					1			1	1		1		1				5
6							1	1									2
T	0	0	1	0	3	7	5	11	10	4	11	5	3	4	2	2	68
Mdn. LA =11.7; SQ =48.5													$r=-.120$; PE =.082 $r_t=-.230$; PE =.082				
GT	4	5	16	35	41	63	54	61	42	29	31	19	18	7	4	2	431

The IQ-SQ distribution for LA's 14 to 24 years is presented in Table 18-B. The correlation coefficient is $r = .80$, which is increased to $r = .83$ when controlled for the influence of LA on both terms. The median IQ is 54.4, median SQ 46.2, median IQ-SQ difference 8.2 in favor of IQ. Note that whereas SA tends to be *above* MA at this life age period (cf. Table 14-B), SQ tends to be *below* IQ (cf. section on SQ-IQ differences) because of ceiling differences.

TABLE 18
DISTRIBUTION OF IQ AND SQ
VTS Total Population

Intell. Quotient	SOCIAL QUOTIENT																
	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	T
Table 18-C; LA 25+																	
85								1		1	1		1				4
80							1	1	1	1							4
75							1	1			1						3
70								1	3	1	1	1					7
65							4	2	2	1			1				10
60						3	2	4									9
55					1	3	10	11	4								29
50				1	3	13	6	5	1								29
45				3	3	8	7	3									24
40				4	5	5	1										15
35				5	9	1	1										16
30		1	3	8	7	2											21
25			2	4	4												10
20		1	3	1													5
15		1	2	1													4
10	1																1
5	2																2
T	3	3	10	27	32	35	33	29	11	4	3	0	3	0	0	0	193
Mdn. IQ =48.8; SQ =32.5													r =.829; PE =.016				
													r_t =.831; PE =.015				
Table 18-B; LA 14-24																	
85										1							1
80											1	1			1		3
75							1			1	2	2	1				7
70									1		1	3	4	3	1		13
65							1	1	1	3	1	4	2				13
60								1	7	4	6	2	4				24
55						2	3	2	4	7	2	1	1				22
50						4	4	4	2	2	1						17
45					1	3		4	2	1	3	1					15
40						3	2	5	3	2							15
35				3	1	4	4	4	1								17
30			1	1	3	3	1										9
25		1		3		1											5
20		1	2		1	1											5
15			1	1													2
10	1		1														2
T	1	2	5	8	6	21	16	21	21	21	17	14	12	3	2	0	170
Mdn. IQ =54.4; SQ =46.2													r =.800; PE =.019				
													r_t =.832; PE =.016				
Table 18-A; LA 14—																	
75												1				2	3
70														1			1
65											2	1	1	1			5
60								1			2		1	1	2		7
55									1		2	1		1			5
50						1		1	2		3	2	1				10
45							1	3	4	2							10
40							2	4	1	2	2						11
35									1								1
30						2	1	1	1								5
25					2	3		1									6
20						1	1										2
15			1		1												2
T	0	0	1	0	3	7	5	11	10	4	11	5	3	4	2	2	68
Mdn. IQ =48.5; SQ =48.5													r =.834; PE =.024				
													r_t =.842; PE =.024				
GT	4	5	16	35	41	63	43	61	42	29	31	19	18	7	4	2	431

The IQ-SQ distribution for LA's 25+ years is presented in Table 18-C. The correlation coefficient is $r = .83$, which remains $r = .83$ when controlled for the influence of LA on both terms. The median IQ is 48.8, median SQ 32.5, median IQ-SQ difference 16.3 in favor of IQ. Note that the SQ here reflects its maximum reduction below IQ whereas for the same period SA reflects its maximum advance over MA (cf. Table 14-C).

In view of the above results it is deemed inadvisable to combine the IQ-SQ distributions for the three major age periods into a single distribution because of the misleading variable influence of LA on both terms, and particularly because of the differences in ceilings which in relation to the relatively static age scores produce divergent quotient scores after LA 14 years. If such a table is desired it can readily be constructed by consolidating the data of Table 18.

SA-MA differences. The disparities between SA and MA scores are generally evident from the grouped data in Table 15. But the individual differences and their relation to life age and to mental age are not so apparent. In order to evaluate individual SA-MA differences in relation to LA and MA we have calculated these relationships (tabulations omitted) for the three life age periods already considered, namely, under 14 years, 14 to 24 years, and 25+ years.

The correlation coefficients between LA and SA-MA differences for these three periods are $r = -.10$, $r = .30$, and $r = -.13$ respectively. The median SA-MA differences for these three periods are .31 years, 1.0 years, and 1.54 years respectively, all in favor of SA. The deviations above and below these medians are generally apparent from Table 15. Considering the data in terms of continuous life age progressions rather than by the three major intervals, we note that the median SA-MA differences are all in favor of SA and fluctuate between approximately 0 to 1.0 years for LA's 6 to 17 years inclusive, between approximately 1.5 to 2.0 years for LA's 18 to 50 years inclusive, and from approximately 1.5 to 1.0 years for LA's beyond 50 years.

Analysis of *SA-MA differences by mental ages* showed no definite tendency for the differences to be related to mental age independently of life age. The correlation coefficients for the three major life age periods are $r = -.26$, $r = .03$, and $r = .04$ respectively. Within each of these age periods the median SA-MA differences are not noticeably related to mental age progression except for some tendency for the dispersions of the differences to increase with mental age, but this tendency is neither marked nor consistent (all tabulations omitted).

Analysis of *SA-MA differences by etiological separation* showed no statistically significant trends (cf. pp. 444-447). Subjective clinical impressions to the contrary were not supported by tabular data.

Similar analysis of *SQ-IQ differences by life ages* yielded correlation coefficients of $r = -.26$, $r = -.48$, and $r = -.12$ for the three major life age periods respectively. The median individual SQ-IQ differences for these three age groups were 2.5, — 7.0, and — 14.6 respectively. The deviations above and below these medians are generally apparent from Table 18. These results therefore show a gross tendency for the SQ-IQ difference to decrease with age and to do so most markedly during the life age period from 14 to 24 years, although rising to larger amounts at LA 25+ years (all tabulations omitted).

Analysis of *SQ-IQ differences by IQ intervals* yielded correlation coefficients of $r = -.27$, $r = -.42$, and $r = -.74$ for the three LA periods respectively. There is therefore a distinct tendency for the SQ-IQ difference to be negatively correlated with IQ and for these correlations to increase with the advancing life age periods (all tabulations omitted). It is, however, clinically difficult to interpret the dependence of SQ-IQ difference on IQ independently of life age because of the involved relationships.

Summary of relationships. We may now summarize the preceding sections briefly as follows, recalling particularly their specific relevance to these mentally deficient subjects.

1. The sample is selectively distributed in terms of LA and MA, with MA showing a low positive correlation with LA up to LA 14, but not thereafter.

2. SA shows a functional dependence on MA and also on LA. SA shows a relatively high positive correlation with MA and a relatively low correlation with LA when selective influences are controlled. While SA continues to develop beyond the period at which MA shows no relation to LA, the amount of SA increase over MA during this period (14-24 years) is relatively slight, reaching on the average a maximum of 2.0 years at LA 23. This increase of SA over MA after the LA at which MA has reached the normative adult ceiling is less than twenty per cent of the average normal

expectation. There is also some tendency for the SA-MA difference to *decrease* after LA 50 years, although SA continues to remain above MA. It may be of interest to note here that other evidence (see p. 559) suggests that senescent deterioration is evident earlier from reduction in SA scores than it is from reduction in MA scores, and that this senescent deterioration among mentally deficient subjects becomes increasingly evident after LA 50 years.

3. The IQ and the SQ distributions, and the SQ-IQ differences, reveal the same tendencies as those obtaining for the SA and the MA distributions, and the SA-MA differences. However, the SQ-IQ differences show more dependence on IQ at successive LA periods (progressive negative correlation) than do the SA-MA differences on MA; that is, there is a negative correlation with *brightness* (relative intelligence) but not with *level* of intelligence. This is in accord with other evidence (Chapter 13) suggesting *over*-capitalization of low degrees of (relative) intelligence and *under*-capitalization of high degrees for social purposes. This, in turn, accords with similar evidence in the literature on the educational capitalization of intelligence. Expressed otherwise, the *age level* of capitalization corresponds to the *age level* of intelligence, while the *quotient degree* of capitalization is negatively related to the *quotient degree* of intelligence.

Reliability of measurement. Evidence on the stability of SA and SQ determinations has been reported elsewhere in preliminary publications as reviewed in Chapter 13. These results may be briefly anticipated here in addition to other data. A clearly elaborated exposition of the technical issues has been set forth by L. L. Thurstone (1931).

1. From the normative standardization population (Chapter 9) a sample of 250 S's were re-examined after a time-interval of 1.7 to 1.9 years (Doll, 1939). These S's at first examination were all under LA 25 years and were slightly biased selectively toward more younger S's and slightly higher SQ's. Analysis for related variables yielded no significant results except in relation to the somewhat uneven progression of SA with LA between LA's 20-24 noted in the normative standardization.

The median first LA was 11.7 years, LA range 0-24 years. The first median SA was 12.2 years, SA range 0-27 years. The correlation between first and second SA's (data grouped at one-year intervals) was $r = .976$ (but note wide heterogeneity). The mean SA increment was 1.95 years. The Q of SA increment, suggesting approximate PE of measurement, was ±.7 years.

The median first SQ of these S's was 103, Q±8. The median second SQ was 105, Q±7. The range of first SQ's was from 67 to 127 for all S's (except for 2 S's below SQ 70 and 3 S's above 130 at LA 0, and for 4 S's above SQ 130 at LA 2). The correlation between first and second SQ's (data grouped at 10-point intervals) was $r = .57$. (The correlation between first SQ and SA increment was $r = -.30$). Note that the effect of the PE of measurement of SA is magnified in SQ comparisons for short time-intervals between examinations.

The median of individual SQ changes (data grouped at 5-point intervals) was 1.5 points, interquartile range from -4.3 to +8.4 points. The Q of SQ change (approximate PE of measurement) was ±6.4 points. Inspection of the data showed a tendency for SQ change to decrease somewhat with LA (from + 5 points at LA's 0-4, to — 2 points at LA's 20-24 and likewise for the spread of SQ change (from an extreme range of — 37 to + 53 at LA's 0-4, to an extreme range of — 18 to +10 at LA's 20-24.

The tendencies of SQ variability are similar in principle and approximate numerical values to 1916 Stanford IQ variability. The precautions noted with respect to IQ variability are therefore generally applicable to SQ (Doll, 1940).

2. Second re-examinations were obtained for 196 of these 250 normal S's after an additional time-interval of 1.35 years (Doll, 1939). This sample showed no marked selective biases. The correlation between first and second SA was $r=.99$, between second and third SA was $r=.97$ and between first and third SA was $r=.94$. The mean first SA was 12.3 years, mean second SA 14.2 years, mean third SA 15.7 years.

3. Analysis of average individual annual growth rates (Doll, 1939) for the normative subjects showed approximations to 100 for S's under LA 20 years, 60 for S's at LA's 20-24, and zero for S's at LA 25+ years. The individual rates for short intervals were materially influenced by the error of measurement.

4. Re-examinations of mentally deficient subjects showed (Doll, 1939) no significant correlation between SA increment and time-interval between examinations from zero to 24 months. The median SA increment was zero, median individual annual rate of growth zero, PE of SA increment ±.5

years. The correlation between first and second SA was $r = .94$ for 408 S's.

The average annual growth rates in relation to LA were 69 at LA 5-9 years (initial average SQ 53), 26 at LA 10-14 years (initial SQ 50), 20 at LA 15-19 years (initial SQ 49), and zero thereafter. These results suggest that whereas the normative adult ceiling is LA 25 years, the differential ceiling for mental defectives is below LA 20 years (estimated at LA 18 years). This still further depresses the SQ's of feeble-minded subjects and further influences the IQ-SQ comparisons after LA 14 years.

5. The calculation of the PE of measurement for the normative subjects was impracticable because of the growth changes in relation to the time-interval between examinations. But since the data for the feeble-minded S's showed no such influence the PE of measurement may be calculated from the formula (Garrett, 1939, p. 321):

$$\text{PE}_{\text{Meas.}} = .6745 \ \frac{(\sigma_1 + \sigma_2)}{2} \ \sqrt{1 - \text{r}}$$

Substituting data for the 408 S's re-examined after a time-interval of from zero to 24 months where no significant growth changes were apparent, and no significant influence of related variables detected, we obtain PE of measurement = .49 years.

This result accords with other data and experience that a given SA score will vary on re-examination within ±.5 years on the average, or within an extreme range of ±2.0 years. Hence deviations beyond this range may be considered statistically significant for interpretation (e.g., growth or decline, influence of treatment or environment, and the like).

6. Evidence on the reliability of re-examination scores was obtained with respect to informants and examiners in a group of 123 feeble-minded subjects (Doll, 1936). For this purpose 12 S's were re-examined by the same examiner using the same informants, 68 S's by the same examiner using different informants, 18 S's by different examiners using the same informants, and 25 S's by different examiners using different informants. The examiners were adequately skilled in the examining procedure and the informants were adequately familiar with the S's. The re-examinations were made at time-intervals between examinations from one day to nine months. No significant influences were detected for the variables of examiner, informant, time-interval, life age, or social age. No growth changes were observable. The correlation between

first and second SA's for the group as a whole was $r = .92$. On the average the second examinations varied from the first by ±.5 years, with extreme range of differences less than ±2 years.

It should be noted that in principle the PE of measurement of SA is not much influenced by the variable performance of the S *except as this reveals bona fide changes* since the examination deals with the S's *habitual* performances and the S does not participate directly in the examination (except in the self-informing procedure). Hence the major variables of measurement are the reliability of the examiner and the informants (including the S as informant on self-informing). And since the examiner is presumed to control the informant through competent interviewing, the major variable is the examining skill or "personal equation" of the examiner. Consequently the principal errors of measurement are attributable to variations in the examination rather than the S, with appreciable responsibility on the examiner for "controlling" the informant.

7. Evidence on reliability in family history studies has been reported elsewhere (Doll, 1937). The SQ's from repeated examinations by the same examiner using different informants were closely similar. This evidence was particularly significant with reference to such variables as hereditary potential, social changes in successive generations, scores on remote ancestors, influence of literacy and cultural status, physical handicaps, mental and physical deterioration, and the projection of juvenile scores to adult levels.

Self-informing. The reliability of scores has been studied for standard versus self-informing procedures. It may be postulated that the S is better informed regarding his own competence than any other informant. But the S as his own informant may be suspected of either over-statement or understatement in terms of his own estimation of the success of his performances, their time of onset, or their habitual stability. In general such evidence is more difficult for the examiner to control objectively with the S as his own informant than is the case with independent informants.

The Scale has been widely used with self-informants both in reported studies (Chapter 13) and unreported studies with apparent success, partly because of the more immediate availability of the S as informant in some situations, and partly because of the psychometric tradition of direct examining. Our own experience indicates that self-informing is reliably practicable as low as LA 4 years for normal S's and as low as MA 4 years for feeble-minded S's but yields scores somewhat higher on the average than does standard examining.

In a trial study with mentally deficient subjects, 39 girls and 28 boys (VTS population) were compared for self-informing versus standard examining (cottage attendants as informants). The SA range for the girls was from 3.8 to 15.7 years for standard procedure and from 5.0 to 19.0 for self-informing. The median of self-informing SA scores was .8 years higher, the Q of differences ±1.5 years, the extreme range of differences from — 1.6 to + 4.6 years (with 7 S's showing differences higher than 3.0 years), and the correlation between scores was R = .90.

The SA range for the boys was from 3.8 to 12.8 years for standard procedure and from 5.0 to 13.0 for self-informing. The median of self-informing SA scores was .7 years higher, the Q of differences ±.5 years, the extreme range of differences from +.2 to +1.2 years (with 1 S higher than 3.0 years), and the correlation between scores was R = .90. Note that the range of variability was appreciably wider for the girls (showing less reliability) and the median difference was slightly higher for the girls.

Validity. Evidence on the validity of SA in relation to item analysis has been presented in Chapters 6 and 10, for the total VTS population elsewhere in this chapter, and in other respects in Chapters 13 and 14. We may recapitulate here two specific aspects of validity with amplifying data.

1. It will be recalled that as a check on a given examination the informant is asked to estimate the S's SA in terms of his own awareness of normal child development. This estimate is requested at the close of the examination before summing the SA score and without revealing the item scores. Of course the general trend of the examination alerts the informant toward an overall appraisal of the S.

As noted previously (p. 381), these results for the normative S's showed so little difference between estimated and obtained scores that the data did not seem to warrant statistical treatment.

2. For the feeble-minded subjects an initial analysis of 250 re-examinations yielded a coefficient of correlation of $r = .85$ between obtained and estimated SA scores, with a median

SA difference of .2 years lower for estimated scores. The average range of deviations was within approximately plus or minus one year of SA.

3. Similar results were obtained with another sample of 175 S's (r = .88, mean difference .2 years lower for estimated SA).

4. A study of validity was made (Doll, 1935) by comparing the rank orders of obtained SA's with the independent rank orders for the same S's by several judges familiar with them. One hundred boys (VTS population) were ranked in order of social competence by the Boys' Supervisor, 100 girls by the Girls' Supervisor, and both groups by the Director of Education and the Chief Clinical Psychologist. The SA range was from 1 to 16 years. Considering the scale ranks as the basis of comparison for a centile progression (100 S's in each group), the average rank differences for the judges varied within ± 10 ranks, with an extreme range from + 35 to — 56. There was a tendency toward underestimation by large amounts for a few S's and toward overestimation by small amounts for many S's (using SA rank as standard of comparison).

5. A separate study was made of 73 S's (VTS girls) ranked by (a) obtained SA, (b) the Director of Education, (c) the Chief Clinical Psychologist and (d) the Girls' Supervisor. The range of SA was from 1 to 17 years. The coefficients of rank order (R) correlation were as follows: a-b = .85, a-c = .95, a-d = .94, b-c = .89, b-d = .92, c-d = .94. The lowest of these coefficients corresponds to the r between obtained and estimated SA, while the highest correspond to SA test-retest scores.

This study clearly revealed certain sources of error in judgment which produced large differences in ranks for a few particular S's, suggesting specific bias in spite of generalized agreement. The high coefficients of correlation, while due in part to the wide range of SA, suggest marked overall concurrence, with the added advantage of numerical scores attaching to the SA ranks. Evaluations of the probable sources of error in subjective ranks were strongly suggestive of the Scale's value.

Sources of error. The sources of error in Scale reliability have already been mentioned. Thurstone (1931) has commented on sources of error in respect to validity based on measurement versus judgments, pointing out the variable elements in judgments versus the relatively stable nature of measurement. In the above studies of validity based on measurement versus judgments it will be noted that the Scale affords an explicit (relatively constant) concept and technique which yields numerical measures of SA within known limits of variability and which may in turn be used for rank order arrays for any sample of S's. The judgments of (estimated) SA may yield numerical scores but without a constant concept or verified standards. The rank order judgments yield arrays for particular samples but without numerical score values.

In estimating SA, or in ranking competence for a given sample, certain variables operate as unknowns to disturb the result. Among these we may mention the following:

a. Personal prejudices for or against the S which make it difficult to separate likes and dislikes from impersonal estimates based on factual merit.

b. Prejudices based on tangible variables (such as LA, MA, IQ, actual competence, and relative competence) which induce substitutive distortions of the bases of judgment.

c. Variable concepts of social competence from one judge to another, or for a given judge for different S's or for different degrees of competence. Thus the Scale employs eight categorical criteria in combination, while a given judge (or several judges) may employ now one, now another, criterion. For example, if an S is high in occupational competence but low in communication competence, one judge might employ the former criterion and another the latter while the Scale employs both. And similarly for different S's evaluated by the same judge.

In general the sources of error in judging social competence are similar in scope, though different in content to those set forth by Terman (1916) in respect to the judgment versus the measurement of intelligence.

V. T. S. RESIDUAL SUBJECTS

In considering the total population of Vineland Training School subjects, it will be recalled (p. 415) that 118 subjects were excepted from the group as a whole because of insufficient data, special conditions in addition to mental deficiency which significantly influenced item and total scores, and diagnoses as not feeble-minded. A brief review of these subjects is now desirable in order to complete the survey picture of the total VTS population. Only descriptive analyses of these subjects are presented because of the small numbers, the broad distributions and the different variables involved. We elsewhere (Chapter 13) report more systematic studies of some of the special conditions represented in these groups, including their "double scoring."

Insufficient data. Ten subjects were excepted because of insufficient data due to brief residence, incomplete examinations, or examination dates somewhat removed from the year 1940. Seven of these ten subjects had been in residence less than three months, two had not been examined since 1936, and one had been incompletely examined. There is nothing otherwise particularly noteworthy about these subjects. While the examinations of recently admitted subjects appeared reasonably adequate, it seemed best to discard them lest they represent records due to recency of acquaintance between the subjects and the informants. However, it may be said from this and other experience that under the conditions obtaining at The Training School it has proved practicable to obtain reliable Social Scale examinations after a period of about two weeks of residence, this conclusion being supported by comparison of such scores with those obtained after longer periods of residence. A further consideration in omitting these subjects is the somewhat unstable value of the Binet mental age scores obtained immediately following admission, although here again experience indicates that such scores are for the most part confirmed by subsequent examinations. The LA's of these subjects ranged from 4 to 33 years, the MA's from 2 to 11 years, the SA's from 3 to 11 years, and the SA - MA differences from —2.4 to 3.4 years.

Visually handicapped subjects. Four subjects were so severely handicapped in vision as to seriously impair their performances beyond the handicap of mental deficiency. These included one completely blind subject, one subject with severe visual defect associated with convulsive seizures and crippled feet, and two subjects with severe cataracts. Another reason for excepting these subjects was the uncertainties surrounding their mental-age scores. In round numbers the LA's of these subjects were 17, 21, 23 and 47 years, the corresponding (but uncertain) mental ages were 8, 8, 7 and 9 years, and the related social ages (without double scoring) were 5, 4, 3 and 1 years. An exploratory application study of the Social

Maturity Scale with visually handicapped subjects is reported elsewhere (p. 527).

Auditory handicaps. Nine subjects were excepted because of severe hearing defect. Four of these nine were also mute, two also had poor vision, three were birth-injured (including two of those who were mute), one was Mongoloid and another cretinoid. The life ages were from 9 to 70 years; the mental ages were not accurately determined; the social ages were from 2 to 10 years; and the SA-MA differences were indeterminate because of uncertain mental ages. An exploratory application study of subjects with auditory handicaps is reported elsewhere (p. 520).

Aphasic subjects. Three subjects were excepted because of aphasia in addition to mental deficiency, the mental ages as well as the social ages being affected by this condition. One of these subjects was mute though not deaf. In round numbers the life ages were 9, 10 and 25 years, the corresponding mental ages (uncertainly determined) were 4, 5 and 8 years, and the related social ages (without double scoring) were 4, 4 and 12 years.

Crippled subjects. Twenty subjects were excepted because of crippling of such nature or degree as to significantly affect the social maturity scores in addition to the influence of mental deficiency. These included fifteen cases with paranatal palsy, one of progressive muscular dystrophy, one of congenital diplegia, one of paraplegia of unassigned etiology, one of motor incoordination, and one with a fractured arm. The life ages were from 7 to 53 years, the mental ages from 1 to 11 years, the social ages (without double scoring) from 1 to 14 years, and the SA-MA differences from —2.7 to 5.0 years.

Convulsive seizures. Nine subjects were excepted because of convulsive seizures of varying frequency and severity, most of them of infrequent occurrence and of mild degree. The social maturity scores of these subjects are of course influenced by the susceptibility to unpredictable seizures. The LA's of these subjects were from 7 to 48 years, the mental ages were from 2 to 8 years, the social ages (without double scoring) were from 1 to 9 years, and the SA-MA differences were from — 1.2 to 1.9 years. An exploratory application study with epileptic subjects is reported elsewhere (p. 562).

Deteriorating subjects. Nine subjects were excepted because of apparent deterioration as indicated by successive reduction in social maturity performance inferred from scores prior to 1940. The LA's of these subjects were from 57 to 76 years, the mental ages were from 3 to 13 years, the social ages (*ad hoc*) were from 3 to 10 years, and the SA-MA differences were from — 2.9 to 2.3 years. As previously noted, deterioration is apparent earlier from social maturity scores than from mental-age scores. Deterioration is also evident from the standpoint of the unsustained vigor of social performance as reflected in the reduction of "fullness" of performance even though the level and variety of performance may be fairly well maintained. An exploratory application study of subjects in the later years of life is reported elsewhere (p. 559).

Mentally disturbed subjects. Twenty-one subjects were excepted because of mental disturbance in addition to mental deficiency. While none of these subjects were psychotic or classifiable in standard psychiatric categories, their behavior was so markedly unstable or cyclothymic as to significantly affect their social competence beyond the limits of simple mental deficiency. The LA's of these subjects were from 8 to 62 years, the mental ages were from 1 to 11 years, the social ages (*ad hoc*) were from 2 to 10 years, and the SA-MA differences were from — 3.5 to 2.8 years. An exploratory application study of mentally disordered patients is reported elsewhere (p. 561).

Diagnosis deferred. Three subjects were excepted because of deferred diagnosis as to mental deficiency and hence not properly to be included in the total sample of mentally deficient subjects. In round numbers the LA's of these subjects were 10, 12 and 16 years, the corresponding MA's were 8, 8 and 10 years, the related SA's were 6, 9 and 9 years, and the SA-MA differences were — 1.7, .8 and — .6 years. The respective IQ's of these subjects were 80, 69 and 74, and the related SQ's were 64, 76 and 58. While the quotient scores of these subjects taken by themselves might warrant a presumption of borderline deficiency, the clinical diagnoses were influenced by other clinical considerations, viz. in one case foreign language handicap (incomplete bilingualism), in another malnutrition with uncertain prognosis, and in the third hearing deficiency and quadriplegia associated with birth lesion.

Constitutionally inferior. Three subjects were excepted because of mental diagnosis as constitutional inferiority and consequently not properly classifiable in the mentally deficient sample. In round numbers the LA's of these subjects were 18, 45 and 54 years, the corresponding mental ages were 15, 16 and 12 years, the related social ages (*ad hoc*) were 12, 11 and 12 years, and the SA-MA differences were — 3.9, — 4.7 and .1 years. The respective IQ's were 114, 116 and 87 with corresponding SQ's of 64, 46 and 49. These subjects showed histories respectively of extreme introversion, hyperthyroidism, and early encephalitis. It is notable that these three subjects were markedly inferior in social performance as compared to mental-age performance, a consideration consistent with the concept of constitutional inferiority.

Borderline dull-normal. Twenty-seven subjects were excepted from the total VTS population because of clinical diagnosis as borderline dull-normal and consequently not properly classifiable in the total sample of mentally deficient subjects. Six of these subjects had associated motor handicaps; four additional subjects had associated physical complications (one each with deafness, convulsive seizures, tuberculosis, and cardiac condition), four subjects showed delinquency trends, and one showed poor social adjustment. Fifteen of these S's therefore revealed special handicaps, while twelve were uncomplicated. The LA's were from 7 to 62 years, with 10 S's under LA 14 years, 7 from 14 to 24 years, and 10 above 25 years. The mental ages were from 6 to 14 years with the median at 10 years. The social ages were from 6 to 18 years, with the median at 11 years. The IQ's were from 66 to 106, with the median at 84. The SQ's (disregarding handicaps) were from 30 to 99, with the median at 72. The SA-MA differences were from — 4.7 years to 6.5 years with the median at .9 years. All of the physically handicapped members in this group had SQ's below 70, and two of those with delinquent trends had SQ's below 70, as well as the one with poor social adjustment. The diagnoses were based on complete clinical considerations. A preliminary exploratory study of mentally borderline subjects in public-school special classes contrasted with borderline subjects institutionalized as mentally deficient is reported elsewhere (p. 557). For preliminary evidence on the effects of delinquency cf. p. 512.

INFLUENCE OF SECONDARY VARIABLES

Returning to the VTS subjects, exclusive of special groups ($N = 431$), it is pertinent to examine the influence of secondary variables. The data permit a fairly careful evaluation of (1) the influence of length of residence, (2) the influence of familial social-economic status prior to admission as indicated by paternal occupation, (3) etiological classification and (4) a single clinical type of mental deficiency. An advance report on these variables has been published previously (Doll, 1945).

Length of residence. Length of residence may be considered as the sum of environmental influences, both positive and negative, such as are included in training, regimen, occupational assignments, the effects of group living, recreational opportunities, and so on. Since the effects of these influences are related to age and degree of maturity, it is desirable to consider the subjects in three major age periods as before, namely, (1) the period below the MA ceiling (LA below 14 years), (2) the additional period below the SA ceiling (LA 14-24 years), and (3) the period beyond the SA ceiling (LA 25 years and beyond). For purposes of analysis SA is the dependent variable, length of residence the independent variable, and LA and MA the selective variables.

The selective relationship of LA to Res. (length of residence) for the three periods is $r = .43$, $r = .74$, and $r = .77$, respectively. The median LA's for these periods are 11.7, 18.5 and 31.9 years, respectively. The median Res.'s are 2.0, 7.6 and 21.2 years.

The selective relation of MA to Res. is $r = .22$, $r = .06$, and $r = -.08$, respectively. The median MA's are 5.5, 7.5 and 7.0 years.

The dependent relation of SA and Res., uncontrolled for influence of LA and MA on both terms, is $r = .28$, $r = .15$ and $r = -.13$, respectively. The median SA's are 5.5, 8.4 and 8.2 years, respectively. When the selective influence of LA and MA on both SA and Res. is controlled by partial correlation, the corrected coefficients for the relationship of SA to Res. become $r = .20$, $r = .19$ and $r = -.11$.

Consequently the dependence of social age on length of residence for these subjects is seen to be positive but low for the period under LA 14 and for LA's 14-24 inclusive, and negative but practically negligible for the period beyond LA 25 years. From such evidence, but not overlooking the statistical cautions previously noted, it would appear that with these institutionalized feeble-minded subjects the effect of environmental stimulation (generally regarded as of high order for this particular environment) on the SA's of these S's is practically negligible. There is a slight positive relation of length of residence to social age during the periods of mental and social maturation, and a slight negative relation after the period of social maturation.

From these observations several inferences might be drawn such as: (1) SA represents primarily a maturational capitalization of development through the spontaneous influence of environmental opportunity and the pressure influences of environmental stimulation in favorable surroundings; (2) beyond such spontaneous capitalization of development the influence of formalized or specially motivated stresses is slight and confined to the maturational period; and (3) after the maturational period the influence of special environmental stimulation is relatively negligible.

The faint loss of social competence with increased length of residence suggests that the major influence of environmental stimulation during the developmental period is not indefinitely sustained but actually shows some ultimate falling off. This falling off might be analyzed in terms of the item categories of the Social Scale, but such analysis would be highly tenuous. Probably the loss is chiefly in the direction of the formalized effects of the communication categories, and perhaps somewhat in the self-direction and socialization categories. but being presumably somewhat neutralized by the positive effects in the occupation category.

It should be noted that by no means all the effects of institutional regimen are measured by this Scale either directly or indirectly. Nor can we say to what extent the institutional environment has promoted a capitalization of development which might not have been experienced without such institutional care. It is evident that these feeble-minded children might have developed less favorably outside the institutional environment. Indeed, it was this fear that led to institutional placement, and to sustained residence, as well as the expectation of positive benefits therefrom. Thus the intangible possibilities of protecting the community, protecting the individual, stabilizing the individual's behavior, and promoting personal happiness and well-adjusted self-expression are not to be lost sight of even though not clearly revealed from the evidence here presented.

Finally, such mass treatment of data ignores the individual effects of length of residence for better or for worse. We shall observe this influence in the presentation of clinical case studies (Chapter 14).

Paternal occupation. The influence of environment may be considered from the standpoint of the cultural status or the social-economic level of the family from which these feebleminded subjects were derived. For this purpose we may employ paternal occupation as the cultural criterion. In the normative standardization we saw that this influence was positive but low. In that evaluation it was presumed that had it been possible to allow for the influence of cultural status on mental age, which was also presumably positive, most of the influence of cultural status on social age could be explained as due to the correlative influence of mental age. In the absence of mental-age data for the normative sample these assumptions could not be explored.

In the total VTS population as of 1940 it was possible to classify 334 subjects by paternal occupational class (POC) as derived from the Minnesota occupational intelligence scale (Bingham, 1937). Forty-two of these S's were under LA 14 years, 132 were between 14-24 years, and 160 were 25 years and beyond. The corresponding median life ages were 11.7, 18.6, and 37.7 years, respectively. The median MA's were 5.4, 7.3 and 6.8 years, respectively. The median SA's were 4.9, 7.0 and 8.0, respectively. The POC's were 4.0, 4.3 and 4.2, respectively. In general these results are closely similar to the total group of 431 subjects from which these 334 subjects were drawn, except that the median SA's for S's below LA 14 years and for S's at LA 14-24 years were .5 years below expectation, due presumably to unresolved sampling influences.

The correlation coefficients for LA and POC were $r = -.30$, $r = .00$, and $r = -.04$, respectively. The corresponding coefficients for MA and POC were $r = -.60$, $r = -.44$, and $r = .02$ respectively. The coefficients for SA and POC were $r = -.58$, $r = -.54$, and $r = -.10$, respectively.

These results suggest the presence of a sampling bias for LA in relation to POC in the group under 14 years. Since there is no obvious reason to expect a significant correlation between LA and POC, this coefficient is interpreted as representing the earlier age at which children are institutionalized from the superior cultural families. This inference suggests the earlier age at which such feeble-minded subjects are recognized (as well as institutionalized), and this in turn may be related to clinical type of mental deficiency—a conclusion which is supported by examination of the etiological classifications and other considerations.

The obtained negative correlation between MA and POC for LA's under 14 and LA's 14-24 is in accord with expectation from various studies of the relation of cultural status to degree of mental deficiency (Bradway, 1935). This reveals a tendency for the high-grade feeble-minded to come from culturally low-grade families, and for low-grade feeble-minded to come from culturally high-grade families. This is in accord with other evidence that high-grade mental deficiency tends to be hereditary from poor stock (endogenous), while low-grade mental deficiency tends to be "accidental" from good stock (exogenous). However, since non-hereditary influences may affect both high and low cultural stock, some of the low-grade subjects from poor families are non-hereditary clinical types, while the presence of high-grade cases in good families is attributable to those exogenous influences which permit relatively high degrees of mental development.

It is important to return to these issues in the later consideration of etiology. However, the negative correlation between MA and POC is not found in the group above LA 25. Analysis of the evidence reveals that this is due to the retention in the adult population of exogenous low-grade cases from poor familial stock traceable to administrative expediencies. It is also due to the tendency for high-grade defectives from "poor" families to be paroled whereas the high-grade from "good" families tend to remain institutionalized. (It may be recalled that about 60 per cent of the total population are state wards and about 40 per cent private wards.)

The negative correlation between SA and POC is now seen to be largely attributable to the negative correlation between MA and POC. This is apparent from the parallelism between the two sets of coefficients and the previously demonstrated dependence of SA on MA. We may examine this more closely by partial correlation for the influence of LA and MA on SA and POC in the LA 14-24 group. The correlation coefficient of $r = -.54$ for SA and POC becomes $r = -.39$ with LA and MA controlled. Hence we conclude that the influence of POC with these subjects is negative but moderately low. This is in accord with other investigations which have indicated a tendency for superior cultural status to continue the period of dependence for subnormal children by even larger degrees than is the case for normal children. This evidence denies (for these subjects) the presumption that SA is materially enhanced by the cultural environment of the family. Such evidence also indirectly confirms the validity of measurement, since if the measures were invalid the logical consistencies of evidence from other methods of approach would not presumably be confirmed.

It was deemed inadvisable to study the effect of cultural status by the pooling of SQ's, as was done in the cases of the normative standardization, because the SQ's for subjects over LA 14 tend to fall below their accompanying IQ's, although SA's tend to rise above the MA's. It was also deemed inadvisable to employ partial correlation in the period below LA 14 years because of the small number of subjects at these years and the nature of the sampling errors. Likewise, it was deemed inadvisable to employ partial correlation for the LA's above 25 years because of the selective nature of the sample.

Etiology. Recent work on the etiology of mental deficiency has emphasized the importance of etiological classification in the interpretation of research in this field (Doll, 1946b). Accordingly, it is pertinent to examine the relation of etiology to SA. For this purpose the subjects have been classified as endogenous (familial), exogenous (non-familial), mixed, and undetermined.

These results are not wholly satisfactory because of limitations of evidence and the clinical difficulties of the interpretation of such evidence as is available. The more recent tendency to employ symptomatic classification in support of etiology has only indirectly been employed in this classification. Had the symptomatic evidence been used, it is possible that the classification might to some degree have been changed, particularly in shifting subjects from the endogenous to the mixed group.

It is of course apparent that exogenous influences may be added to endogenous influences; birth lesion, for example, is no respecter of families. The classification is only slightly influenced by the proportion of state versus private wards, for the VTS population as a whole is known to be fairly representative of the generality of the institutionalized mental defectives. For present purposes the subjects have been considered in the three major LA periods previously employed because of the differences in MA and SA ceilings.

TABLE 19

SUMMARY OF DATA BY ETIOLOGICAL AND CULTURAL ORIGINS

	Endogenous				Exogenous			
	N	LA 14 −	LA 14 −24	LA 25 +	N	LA 14 −	LA 14 −24	LA 25 +
N	113	14	47	52	104	21	42	41
Med. LA		12.0	18.3	39.5		11.9	18.8	37.3
MA		7.0	8.6	7.1		4.4	6.0	6.3
SA		7.0	10.0	8.4		4.3	7.0	7.4
SA—MA		0	1.4	1.3		−.1	1.0	1.1
*r*MA/SA		.78	.68	.81		.85	.91	.89
N—POC 4, 5, 6	73	5	28	40	25	4	12	9
N—MA 7.0 +	48	4	24	20	10	1	7	2
N—MA 7.0 −	25	1	4	20	15	3	5	7
N—POC 1, 2, 3	3	1	0	2	62	13	27	22
N—MA 7.0 +	1	0	0	1	19	0	7	12
N—MA 7.0 −	2	1	0	1	43	13	20	10

The analysis of these data is summarized in Table 19 which shows the comparative results for endogenous versus exogenous subjects. The following observations may be drawn from this table:

1. The median LA's are substantially similar for the two etiological groups by life age periods.

2. The MA medians are consistently higher for the endogenous subjects at each of the three life age periods, the amount of superiority being 2.6, 2.6 and .8 years respectively.

3. Similarly, the median SA's are consistently higher for the endogenous subjects, the differences being 2.7, 3.0 and 1.0 years respectively for the three life age groups.

4. The SA-MA differences are also consistently higher for the endogenous group, but by relatively small amounts, the differences of these differences being .1, .4 and .2 respectively.

5. The raw correlations for MA and SA uncontrolled for influence of LA on both terms are consistently higher for the exogenous group but by relatively small amounts.

The relation of POC to etiology is of considerable interest in this connection and is included in the data of Table 19. The following observations are pertinent:

1. In the endogenous group, 73 of 76 subjects where POC is known are of inferior cultural status (PO's 4, 5 and 6),

while in the exogenous group 25 out of 87 subjects where POC is known are so classified. In other words, 96 per cent of the endogenous subjects are of inferior social status as compared with 29 per cent for the exogenous subjects. These relationships are substantially the same for the three life age periods for both groups.

2. The relation of MA to POC by etiological grouping is indicated by contrasting the S's with MA above and below MA 7.0 years, the former broadly including the moron range, and the latter likewise the idiot and imbecile range in terms of mental age. (This division is conventionally made at MA 8.0, but is here placed at 7.0 as representing the median MA of the aggregate of VTS subjects.) It will be observed that in the endogenous group 48 of the 76 subjects classed as POC 4, 5 and 6 are above MA 7.0, while in the exogenous group the proportion is 10 out of 25. Reduced to percentages this reveals 63 per cent of endogenous subjects of low cultural status with high MA's as compared with 40 per cent for the exogenous subjects. A similar analysis for high cultural status shows only three subjects in the endogenous group as against 62 in the exogenous, the proportions in both groups with MA above 7.0 years being approximately one-third.

3. The corresponding analysis for SA in relation to POC and etiology is omitted here in view of the similarities in the dependence of SA on MA by etiological grouping. These data reveal substantially the same observations for SA as have been noted for MA.

4. Individual review (data omitted) of the low-grade subjects of endogenous classification reveals that nearly all of them are symptomatically exogenous rather than endogenous in that they reveal peculiarities of behavior similar to those of exogenous subjects but without supporting history of exogenous etiology. There is a reasonable presumption that most of the 25 S's of endogenous etiology in POC classes 4, 5 and 6 with MA's below 7.0 years are at least of mixed origin rather than unquestionably endogenous.

5. Individual review (data omitted) of the 25 S's of exogenous etiology in POC classes 4, 5 and 6 reveals that 13 of them are classed as birth lesion, 4 as due to debilitating juvenile illness, 3 as Mongoloids, 1 as due to meningitis, 1 due to trauma, and 2 undesignated.

Mongoloid type. Only two clinical varieties of mental deficiency occurred among the VTS subjects in sufficient numbers to warrant analysis, namely, the Mongoloid type and the birth-injured. In view of the wide spread of characteristics in the latter group and the fact that many of the subjects with birth lesion have been eliminated because of cerebral palsy, it seems inadvisable to consider that category. Hence the analysis by clinical variety is limited to the Mongoloid type.

Thirty-nine of all VTS subjects were of the Mongoloid type. Of twenty-eight of these where POC was known, all but three were from POC classes 1, 2 and 3, confirming previous evidence that Mongolism tends to occur in higher-grade cultural families. (There may, however, be some cultural selection in this sample.) Indeed, twelve of these twenty-eight S's were in POC 1.

For the total group of 39 S's the median LA was 21 years, with all but one subject below 38 years. The median MA was 4.9 years, and the median SA 5.5 years. The median SA-MA difference was .7 years, which is slightly below expectation for LA. The correlation coefficient for MA and SA was $r = .76$, which became $r = .73$ when controlled for influence of LA on both terms. All but two of these 39 S's were below SA 8, and all but one below 7. This means that these subjects were below the level of significant literacy, useful occupation, self-direction and socialization; that is, they received most of their item credits in the categories of self-help and the early stages of communication, occupation and socialization.

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PART V

APPLICATIONS

Chapter 12. Varieties of Uses
Chapter 13. Exploratory Studies
Chapter 14. Clinical Integration

12

Varieties of Uses

There are seven things that a child must have if he is to grow into a mature adult: a desire to move, a readiness and willingness to imitate, an alert response to suggestion, a reasonable amount of the love of power, a strong leavening of curiosity, a dash of childhood savagery, and a spark of romancing. —Edward A. Strecker.

Some uses of this scale have already been indicated. Others are readily apparent. A systematic presentation of representative possibilities calls attention to the Scale's less generally anticipated advantages. Some of these derive from the universal import of social competence.

This scale has the usual advantages of a standard measuring instrument, and also the unusual advantage of not requiring the physical presence of the subject for examination. This tremendously extends the scope of the Scale's usefulness since it may be used with S's who may be inaccessible to other measurement because of geographical remoteness, ill health, unwillingness to be examined, and so on. This practicability of examining the subject *in absentia,* or even posthumously, or without his awareness, is a feature not common to other devices for human measurement.

Some of the more specific fields of application may immediately be conceived as follows. The list is suggestive rather than exhaustive. If some topics seem trite or repetitive, this is because of varying emphasis for illustration. And if the treatment seems a bit expansive, this is because the measurement of social competence has so many ramifications that its elucidation is not always obvious. Specific exploratory studies illustrative of such practicabilities are reviewed in Chapter 13.

I. NORMATIVE MATURATION

1. *Normative standards.* The Scale provides a normative standard of social development from infancy through senescence. This "time-table" affords both a schedule and a calendar by means of which human growth and social competence may be measured with some numerical precision. The direction and tempo of this development are inherent in the Scale as standard-

ized. The reader may wish to undertake listing the many specific projects that can be envisaged under this conception.

2. *Individual differences.* As a standardized schedule of development, the Scale provides a means for measuring individual differences in levels and rates of social maturation. These individual differences may be used for purposes of classification, prediction, or for the study of related variables.

3. *Developmental histories.* The Scale may be used for developmental anamnesis by inquiring as to the age at which the specific items of the Scale were first successfully performed. This replaces the currently meager and variable procedures for obtaining maturational histories. It permits reducing the life history to a systematic chronology which objectifies the significance of deviation from the norm.

4. *Individual growth charts.* The Scale may be applied retrospectively as a measure of previous growth by considering the S as at such successive age periods as may be desirable or practicable. The reliability of these measures will be indicated in the examinations themselves by the amount and definiteness of the information that can be obtained. Growth trends may also be predicted from *status quo* in terms of the statistical probabilities established for such measurements, and the predictions fortified by consideration of the *status ante* established by retrospective scores.

5. *Adult achievement.* For the years of adolescence and early manhood the Scale has value as a guide to the concrete goals to be sought as normal attainments. The items and their age standards thus afford a framework for counseling young adults regarding their anticipatory adult responsibilities.

6. *Correlative development.* The correlation of social maturity with other aspects of development (as revealed by studies already reported, or such as may be undertaken) makes it possible to evaluate other aspects of development in terms of these statistical relationships. Thus the Scale may be used as an index of the social capitalization of intelligence on the basis of the known correlation between social age and mental age.

II. SOCIAL STUDIES

7. *Ethnic variables.* The Scale provides a means of investigating the influence of race, color, nationality, and similar variables on social attainment. For such comparative studies

the present scale may require culturally oriented modification in order to allow for phylogenetic idiosyncrasies or environmental vagaries. Such necessary modifications may of themselves shed light on the significance of these influences.

8. *Social status.* The Scale provides a means for studying the relation of social-economic status to social competence, employing such status within a given racial or national group as a point of reference. Thus the actual competence of the "underprivileged" social classes as compared with the "favored" social classes may be more clearly revealed. The objective evidence of social competence found at different cultural levels may be used as a point of departure for studying the causes of these effects. Here again, the need for adapting the Scale to different social status requirements reveals factual aspects of cultural variation which leads to a more systematic evaluation of contributing influences.

9. *Dependency.* The Scale is useful in studying the relation of social competence to such social welfare problems as poverty, non-support, unemployment, broken homes, child neglect, illegitimacy, or the broad field of "social pathology." The Scale has already been used in the study of transients, unemployed, orphans, and similar conditions.

10. *Placement and adoption.* The Scale is useful as a means for evaluating mental development in cases of child placement or adoption. This is particularly important in view of the very early ages at which social development may be measured with some accuracy. Of course it is especially necessary in such work to evaluate the results in terms of their accompanying influences.

11. *Delinquency and crime.* In the case of offenders untrustworthiness, hostility, social irresponsibility, nonconformity and aggressiveness operate as special handicaps to normal social success. These characteristics are high-lighted by use of this scale. Or delinquency and crime may be direct or indirect by-products of social incompetence. Hence many of the particular uses of the Scale already suggested apply *a fortiori* with correctional subjects. In addition the Scale may be used as a therapeutic method which promotes insight on social behavior and as a measure of progress toward rehabilitation and prospect of success on parole. Indeed, the very motivation which when abnormally directed produces offenders may be insightfully redirected toward approved social conduct and achievement.

12. *Senescence.* The Scale is useful in the study of the social dependency of the aged, infirm, and senile as revealing the extent of care required as "old folks" lose the ability to look after their own needs. The Scale is thus a useful technique in the field of gerontology.

III. EDUCATION

13. *Child training.* The normative aspect of child development inherent in the Scale may be employed as an outline of child training, since the Scale indicates the ages at which the performances in question are normally achieved. And since there is good reason to suppose that these performances are environmentally modifiable only within narrow limits, the ages at which the performances are normatively attained may be employed as representing the optimum periods for training.

14. *Parent education.* As a schedule of child development the Scale offers valuable information in the field of parent education in respect to child training and implies how parental responsibility for such training may be most effectively discharged. Thus the Scale suggests the nature, course, and age-standards of developmental attainment which parents may strive to foster through environmental influences.

15. *Pupil classification.* The Scale is helpful in the classification of school children according to level of social development. This is particularly important with reference to the modern tendency toward socialized objectives of education and those progressive methods of education which have significant social foundations. The optimum timing for instruction in relation to maturation is also indicated.

16. *Educational objectives.* The Scale provides a means for predictively and retrospectively evaluating the presumptive social destiny of the individual and of relating the social objectives of education thereto. Such adaptation of ultimate goals to presently apparent maturational aptitudes must avoid arbitrary regimentation, but studies in this direction should prove definitely profitable as an aid to educational guidance which is both democratically and realistically oriented.

17. *Special classes.* The Scale provides an important means of evaluating the maturational status of school children in respect to the advantages of special class education. One

such use of the Scale is in the detection of mentally deficient school children and their separation from the pseudo-feebleminded and the intellectually dull-normal for teaching purposes. The Scale is also helpful in respect to other special classes where handicaps of vision, hearing, motor facility, health, and the like impose limits on social adequacy. Here too, the Scale suggests some of the objectives of special education to be sought in classes for the mentally and physically handicapped if education is to be capitalized for ultimate social independence.

18. *Vocational guidance.* With increasing attention to vocational guidance in the public schools, the Scale affords a means of assisting this important work by revealing not only the general level of social attainment, and perhaps some prediction of ultimate level, but also indicates strength and weakness in the different categories of social development. It has been used as an indication of individual aptitude or disability and hence of the directions in which strength can be capitalized or weakness avoided. And, as indicated above, it outlines the anticipatory direction and degree of normative attainment for age.

IV. THE HANDICAPPED

19. *The blind.* Loss of vision, partial or complete, imposes handicaps on social competence. Evidence on the manner and extent to which these affect the individual can be gathered by use of the Scale. This in turn suggests what steps might be taken to overcome these effects or to substitute for them.

20. *The deaf.* As in the case of blindness, so the effects of deafness on social competence may be evaluated directly and the means of obviating these influences inferred from their effects.

21. *The crippled.* Motor handicaps due to crippling, such as accompanies cerebral palsy, poliomyelitis, fractures, amputations, interfere with social competence, and the specific directions of such interference are indicated by the Scale. As for the blind and the deaf, the results suggest the limitations to be avoided and the residuals of competence to be fostered.

22. *The constitutionally restricted.* A number of organic ailments, structural and functional, which reduce vitality or

limit activity are reflected in reductions of social competence. Among these we may note cardiac dysfunction, malnutrition, endocrine disturbances, respiratory diseases, and other infirmities. These variously affect particular categories of social behavior or impose overall reduction in vigorous expression. Here too, the Scale affords a witness of the trend and severity and the amelioration of such consequences.

23. *The emotionally disturbed.* Behavior problems in children and the milder neuroses in adults attributable to emotional undercurrents, impair social success. Specific aspects of such impairment as revealed by the Scale afford indications for evaluation, management, and alleviation.

24. *The feeble-minded.* The Scale is specifically useful with feeble-minded subjects as a primary basis of diagnosis and classification, and also as indicating the limits and directions of treatment and the optimum timing for success from training.

25. *The deteriorated.* Social deterioration is observed among the senescent, the senile, the insane, the epileptic, and in various debilitating or disturbing disease conditions. The Scale reveals the nature and extent of these losses in social competence and also reveals the direction and degree of recovery achieved under treatment or care.

26. *Therapy.* The mentally, physically, and socially handicapped, including offenders, are objects of therapeutic endeavors designed to alleviate these conditions and improve or rehabilitate the persons so affected. Such amelioration as may be sought or effected is implicitly directed toward ultimate social capitalization. Here the Scale affords a measure of recovery by revealing social adequacy prior to, during, and after treatment as the ultimately significant index of the handicap and its management. Such management may be pediatric, ortheopedic, geriatric, neuropsychiatric, psychotherapeutic, or may follow lines of psychological, educational, social counseling or disposition. Insofar as the ends sought or the measures employed are socially motivated or successful the Scale affords a means of initial and final evaluation.

V. EXECUTIVE USES

27. *Institutional administration.* The Scale is especially helpful in institutional administration for the socially handi-

capped. Here such problems as classification, regimentation of behavior, care, treatment, education and training are paramount. While the Scale reveals the need for varying degrees of custody, supervision and restraint, it also suggests directions in which traditional institutional regimentation may be or should be relaxed, transformed, or perhaps increased. In institutional practice the Scale "discovers" unsuspected social competence on the part of hidden, lost, or non-aggressive individuals who tend to be set aside or overlooked in the mass treatment of dependents. Or the Scale "shows up" those more obtrusive or aggressive individuals who because of personality attitudes seem to be more competent than they are. It serves to reveal the progress made under treatment and training and thus provides a criterion of the effectiveness of such methods. When so used it indicates the degree of recovery from the influences which precipitated institutional commitment and reveals the individual's prospects for success on transfer, parole, discharge, or placement. It affords a practical description of the inmate which may accompany him when he leaves the institution and may reveal his success after release.

28. *Personnel selection.* Scientific management in business and industry has become alert to the critical importance of employee personnel. Improved methods of selection and placement now require more systematic methods for appraising prospective employees as well as for reclassifying those already in service. The habitual exercise of initiative and resourceful personal and supervisory responsibility are here at a premium. The Scale affords a preliminary outline for such appraisal from common labor to executive levels, independently of special skills, which facilitates the interviewing of prospective personnel and reveals in-service employee development.

29. *Legal practice.* The Scale affords a measure of personal competence which is particularly valuable in jurisprudence, where there is some justifiable conservatism regarding the value of mental measurement devices. Since the courts are impressed by the actual social competence of the individual, the direct measurement of such competence is of basic importance in juridical practice. Reference has already been made regarding the study of offenders and the administrative value of the Scale in correctional institutions. The issues more immediately involved in the courtroom include the determination

of social responsibility in civil litigation and criminal prosecution.

30. *Guardianship.* A special issue in court room and civil practice is that of gaining convincing insight toward both wards and their guardians. To interpret the S meaningfully to such legal surrogates as appointed guardians or trustees is a serious responsibility which is appreciably clarified by the use of the Scale. It should be recalled that the *informant* in such situations gains insight by the nature of the examination.

VI. FIELD AND LABORATORY STUDIES

31. *Anthropology.* The Scale affords a systematic technique for the study of acculturation from simple to complex levels. The modes and degrees of maturation in comparative societies may be revealed either (1) by applying the Scale without concession to cultural differences, or (2) by adapting it to particular cultural idiosyncrasies. It is assumed that the Scale should not be used in its present form with disparate groups, but rather that the adaptations would in themselves require and yield significant research comparisons between such groups. The problem is similar to that encountered with physically handicapped S's with and without allowance for expressive limitations on performance.

32. *Eugenics.* The Scale is especially useful in the family history study of human heredity as yielding quantitative data regarding the "laws" of familial transmission of social aptitude and their influence on population trends. Such studies also illuminate the effects of environment, social epochs, familial striving, social stratification, and the amalgamation of racial and cultural groups. The Scale is particularly helpful in ramified longitudinal studies because of its practicability for appraising successive generations of individuals not accessible for direct examination or not cooperative in such examination. The cost in time and travel may thus be greatly reduced and the amount of data collected materially increased. A single informant may sometimes serve for several generations, e.g., his own, his parents', his children's, grandparents', grandchildren's. Checks may be made by using different informants for the same propositi.

In studying the heredity of social competence it is important to use equated adult-prime scores (p. 379). The relation of social competence to life age may be fortified through retrospective examining and through estimates of prediction. And as previously noted, it affords a means for inferring correlated aptitudes for subjects not accessible for direct measurement of such aptitudes.

33. *Psychobiology.* Studies in comparative psychology have long been characterized by inadequate description of the "clinical" attributes of the laboratory animals. Yet these subjects of research vary as do men in degree of maturation as well as in level and kind of aptitude. Thus the performances of cats presumably are related to strain, age, sex, or developmental and environmental history and are affected by individual differences within these variables. The design of this social scale is obviously adaptable for comparative purposes. The manner in which and the ages at which different animals mature from infancy through scenscence, and vary from deficiency to talent should be susceptible to systematic appraisal comparable to human variation. To compare an adult idiot with a normal human infant may be scientifically less relevant than to compare the incompetent human with a competent anthropoid or even a self-sufficient sub-anthropoid. Hence an adapted "social scale" for sub-humans, like that previously suggested for primitives and the handicapped seems both practicable and desirable.

VII. CASEWORK

34. *Diagnosis.* The central problem of individual welfare is the facilitation of personal adjustment. This requires a holistic conception which is often epitomized in a diagnostic synthesis of attributes. The evaluation of social competence is a significant point of departure for such diagnosis as a measure of both need and success of management or therapy. The presenting "complaint" is usually related to questions of social adequacy which must be clearly revealed before its underlying causes can be clinically analyzed. The Social Scale is a ready means for this first reduction of problem orientation, and serves also to support both hypothetical and real outcomes.

35. *Classification.* Clinical diagnosis leads in all types of problems to differential management or disposition. Here the degree of social adequacy is usually of primary importance as initial orientation, transitional management, and ultimate goal. Both the practicabilities and the desirabilities of treatment may thus be implicitly implemented.

36. *Related variables.* Such classification will of course be descriptively related to other elements of the integrated

personality. The competent use of the Scale will usually suggest their relevance for correlated measurement. Both aura and detail of the Social Scale examination may yield significant leads in these directions, and this will be assisted by the evaluation of performances for both items and categories.

37. *Prognosis, disposition, and treatment.* The implications for outlook and treatment follow both generally and specifically from clinical appraisal. Some aspects of management will be apparent to the informant in his role-relation to the S. And if the S serves as self-informant there will be some spontaneous "treatment" benefits through the insight provided by the self-analysis so induced and the accompanying implications for self-improvement.

In this sense the examination provides some of the clarification of feeling sought in non-directive counseling or may afford a basis for directive counseling. Or the results of the examination may provide a basis for orienting psychotherapy, group therapy, or other mental hygiene procedures. And the benefits of such procedures may be estimated from repeated examinations.

38. *Deterioration and improvement.* The Scale also provides for clinical purposes a direct measure of the extent and nature of social deterioration as reflected in the reduction of efficiency or increase in proficiency in personal aptitudes. It may be used with mental patients (a) to record progressive deterioration, (b) to plot the previous course of deterioration by retrospective examining, (c) to note arrest, or improvement, or permanence of recovery following regimen or therapy, (d) to evaluate the respective merits of different types of treatment programs. In the same spirit it reveals (e) increasing dependency with advancing age, (f) the period of maximum achievement, (g) the effect of critical incidents in the life history, (h) the modifications of behavior or personality which may coincide with such incidents.

VIII. LITERATURE

39. *Biography.* The retrospective use of the Scale is applicable to recorded personal data, as well as to data obtained from interviews with living informants. Where retrospective interviewing is impracticable, biographical records may afford at least partial substitutive data. This method has been used in longitudinal casework with reasonable success (Chapter 14). It is also applicable to biographical records and historical lit-

erature containing data on personal life histories. From wolf-children to the Wild Boy of Aveyron, from Nero to Hitler, or Archimedes to Edison, the records of social maturation and achievement may be converted from historical narrative to measurement equivalents. Whereas such studies as those by Terman on genius employ social data as inferential evidence of intelligence, the Social Scale employs such data as direct evidence of competence.

40. *Fiction.* Similar possibilities are apparent in the evaluation of character portrayal as found in the realm of literary fiction and romantic poetry. Are the developmental careers of such characters "true to life" from the standpoint of genetic psychology and normative behavior? Would Goddard approve Dickens or Steinbeck, and did the Five Little Peppers anticipate Gesell? Modern norms of child development and adult attainment provide a psychological anatomy and physiology for literature analagous to their physical counterparts in painting and sculpture. As the psychiatric novels of Oliver Wendell Holmes yield data for orthopsychiatric evaluation so do they also reflect genetic maturation susceptible to systematic appraisal.

What we have tried to indicate in this chapter is that this Social Scale as a standardized instrument opens new vistas for scientific research and social exploration. It facilitates the more systematic gathering of evidence, and more definitively than has proved practicable by less objective approaches. And if there be nothing new under the sun one may nevertheless consider better means of utilizing existing substance.

13

Exploratory Studies

> *The formulation of a problem is often more essential than its solution, which may be merely a matter of mathematical or experimental skill. To raise new questions, new possibilities from a new angle, requires creative imagination and makes a real advance in science.* —Einstein and Infeld.

Previous chapters have presented detailed evidence on reliability, validity, and the analysis of numerous variables with normal and feeble-minded subjects. The present chapter summarizes various trial studies with different types of subjects as a research and professional technique. These studies reveal preliminary results in the several fields explored and illustrate representative directions in which the Scale's practicability has already been demonstrated. The organization of material in this chapter broadly parallels that of Chapter 12.

I. GROWTH RATES

1. *Normative S's.*

Some analysis of growth variables with normal subjects was presented in Chapter 9. To these results may be added those obtained from the continuing re-examination of various sub-samples of the subjects participating in the normative standardization. Annual re-examinations of certain of these subjects were continued over a period of six years (1935-1941). This material has been analyzed (Doll, 1939b) for first and second re-examinations over time-intervals of one to three years (1935-1938).

a. Two hundred fifty of the original 620 normative subjects examined early in 1935 were re-examined at the close of 1936 after a median time interval of 1.85 years. No selective influences were apparent in this sub-sample except for (1) no S's over LA 24 years in 1935, (2) slightly more younger S's, and (3) slightly higher average LA, SA and SQ. Medians for this group in 1935 were LA 11.7, SA 12.2, SQ 103. Comparable medians in 1936 were LA 13.5, SA 14.6, SQ 105. Median LA increment was 1.85, median SA increment was 1.95, median annual interval growth rate (grouped data) was 105, median SQ increment was 2.

The median *individual* interval growth rate (113) was 10 points above the median initial SQ (103). This *interval* rate increase did not materially modify the end SQ (a *cumulative* rate of growth) because it is absorbed in the total LA period (13 years). The individual interval growth rates reflected variability due to the probable error of the measure as well as growth trends. There was also some reflection of the selectivity of the sample (slightly more younger S's and slightly more superior initial SQ's).

The individual interval rates of growth for S's over LA 20 were half as great as for S's below LA 20 (59 and 119 respectively instead of the average normal expected rate of 100). This reflected the somewhat irregular progression of normative scores for the initial standardization for the period LA 20-25 years. (It will be recalled that in the normative standardization the progressive test-age scores were somewhat irregular for LA's 20-25 years and showed no increases after LA 25. These discrepancies were smoothed in the normative standards but are reflected in the individual growth rates for these ages in the growth study data.)

The Q of SA increment was ± .7 years for these 250 first re-examinations. The extreme range of increment variability was ± 3.5 years. (The probable error of the measure [p. 431], which is included in the range of SA increment, seriously affects individual growth rates during relatively short time intervals. The effect is progressively reduced as the time interval increases. The effect is also less noticeable for grouped data.)

b. Seventy-eight S's from the normative (1935) population sample were re-examined in 1938 as first re-examinations after a median time-interval of 3.3 years. These S's showed some selective tendencies toward the upper LA range of the initial sample and included S's at LA's 25-30 years. The results yielded a median individual interval growth rate of zero for S's with initial (1935) LA 25+ years, 58 for S's between LA 20-25 years, and 100 for S's below 20 years.

c. Second re-examinations were analyzed for 196 S's examined a third time in 1938. These represented the 1936 re-examination sample of 250 subjects after an additional median time-interval of 1.35 years (total interval 3.3 years). This sample showed no significant selective influences. The median individual interval rate of growth for the second period was 97 for these S's as compared with their first interval growth rate of 110 and initial SQ of 103. Cumulating the first and second re-examinations of this group for the 3.3 year interval yielded a cumulative individual interval rate of 104. This is one point above the initial median SQ. The median SQ (grouped data) at the third examination (1938) was exactly the same as at the first examination (1935).

The interpretation of SQ change involves at least four different considerations, namely: (1) the normal probable error of the measure, (2) deviations due to gross errors of examination, (3) bona fide changes in social or personal circumstances seriously affecting the SA scores as measure of *expressive* change at either examination, and (4) bona fide maturational trends. The clinical significance of SQ change due to interval growth rate variability must reckon with at least these possibilities, recalling that such rate changes are absorbed in given SQ's as cumulated rates for the total LA at the time of examination. In other words, SQ becomes more stable (less sensitive to change) as LA increases. The problem is similar to that of IQ change (Doll, 1940b).

From these results of re-examinations with normal S's we may observe: (1) that there are marked individual differences in apparent rates of growth in social competence as measured over relatively short time intervals; (2) that the growth rate is variable and less than 100 for the period LA 20-25 and reflects discrepancies in the normative standardization for that period; (3) that the average individual growth rate is negligible after LA 25, confirming the normative average ceiling; (4) that these rates are significantly affected for short time intervals by the probable error of the measure; (5) that the influence of the probable error of the measure is reduced for central tendencies and is progressively reduced as the time-interval increases; (6) that for these data the growth rates approximate the average normal expectancy of 100 both for averages and for mid-range individuals; (7) that the SQ is substantially constant for the mid-range of the distribution, and substantially variable for the lower and upper quartile ranges of the distribution; and (8) that care should be observed in the clinical significance of SQ as contrasted with group tendencies and the discrete character of particular groups.

2. *Mentally deficient S's.*

The Scale has been used in the systematic examination and re-examination of all mentally deficient pupils residing at The Training School at Vineland, N. J., from 1935 to 1942. A preliminary report was made of some of the data obtained during the first four years of this investigation (Doll, 1939b). It is anticipated that later reports will deal more adequately with the total data obtained over the eight-year period, and the routine data gathered since 1942.

Social Scale results from 451 feeble-minded subjects, exclusive of S's with special disabilities other than mental deficiency, were analyzed for first re-examinations. The time-interval between these examinations was less than 6 months for 126 S's, 6-12 months for 134 S's, 12-24 months for 148 S's, and 24-48 months for 43 S's. The sex ratio was 332 male and 119 female. Median LA at first examination was 21.0 years, Binet MA (1916 Stanford) 6.9 years, IQ 53, SA 7.4 years, SQ 42, length of VTS residence 7.7 years.

The correlation between SA increment and time-interval (disregarding other variables) for all S's at first re-examination was $r = .08$. The median SA increments for half-year time-intervals fluctuated around zero. Eight per cent of all subjects obtained identical scores on re-examination regardless of time-interval, 46 per cent scored within ± .5 years of SA change, 78 per cent within ± 1.0 years, and 90 per cent within ± 1.5 years. Median LA increment between examinations was .87 years, median SA increment zero, median annual interval growth rate (grouped data) zero. Appreciable median SA increment was apparent only for S's at LA 5-9 years, but this group included only 42 S's and the effect was obscured in the gross data.

From these data as a whole it was inferred that for most of these institutionalized feeble-minded subjects the SA changes revealed only variability of the measure rather than significant growth or improvement. The Q of SA change was ± .5 years for the entire sample (disregarding other variables).

Test-retest reliability coefficients were $r = .96$ for the 76 S's re-examined after a time-interval of less than one month, $r = .96$ for 126 S's re-examined after less than six months (including those under one month), $r = .94$ for 134 S's re-examined after six to twelve months, and $r = .96$ for 148 S's re-examined after twelve to twenty-four months. For these 408 S's re-examined at all intervals from zero to twenty-four months $r = .94$.

In order to isolate the influence of LA on growth changes, a table was prepared based on LA's at first examination for successive five-year periods. Table I (Doll) reveals both amount and rate of progressive decline in median SA increments with advancing LA.

TABLE I (Doll)

ANALYSIS OF S. A. INCREMENTS

LA	5-9	10-14	15-19	20-25	25+
SA	4.3	7.0	8.1	8.8	7.9
MA	4.7	6.8	7.6	7.2	7.2
SQ	53	50	49	39	32
SA inc.	.44	.18	.23	0	0
LA inc.	.64	.70	1.17	1.03	1.0
Av. Rate	69	26	20	0	0
N	42	94	80	52	182

In order to isolate the effect of longer time-intervals between examinations all data (including cumulative changes from successive re-examinations) were analyzed for all S's re-examined after an interval of 24-30 months (each S used only once). These results yielded median annual growth rates (grouped data) of 53 at LA 5-9 years, 36 at LA 10-14 years, 10 at LA 15-19 years, and zero thereafter.

Analysis for relation of SA increments to SA, MA, IQ, SQ, sex, and length of residence showed no significant trends.

These results as a whole covered a relatively short time-span but suggested that the Scale "holds up" in longitudinal studies of the same subjects. They are in accord with the evidence from cross-section studies. They supply significant evidence on test-retest reliability and the influence of early maturational retardation and arrest versus environmental stimulation. They also confirm the earlier maturational ceiling for feeble-minded subjects (Chapters 10 and 11) and reveal the accelerated decrease in SA growth rate after LA 10 years. This in turn emphasizes the need for care in IQ-SQ comparisons with feeble-minded subjects above LA 15 due to differences in the normative ceilings for MA and SA.

The above report does not deal directly with the analysis of SQ constancy with feeble-minded subjects. But it is obvious from this evidence that the SQ's of mentally deficient subjects show a progressive decline with advancing age beginning at least as early as LA 10-14 years. Between LA 10 and 20 years the median growth rates are only about one-third of the growth rates at LA 5-9 years. From LA 20 forward the growth rate is zero. The apparent constancy of median SQ from LA 5-20 in the 4th line of Table I (Doll) is apparently due to selective entry into the data of higher-grade subjects at LA's 10-20, since such S's are seldom institutionalized prior to adolescence. This is evident from the second and third lines of Table I (Doll). The annual growth rates at LA's 10-20 are only about half the median SQ's at these ages.

From this it may be inferred that after about the mid-point of the period LA 10-14 the SQ's of mentally deficient subjects show average decline with an ultimate average ceiling at the mid-point of LA 15-19. Other evidence confirms this differential average ceiling at approximately 18 years, which is also the upper limit of SA attainment for mentally deficient subjects.

It is highly probable that SA ceiling and growth rate are related to *degree* of mental deficiency, with idiots, imbeciles and morons reaching their respective SA ceilings at progressively later LA's and with corresponding retardation in growth rate and therefore in SQ. It is also highly probable that ceiling and rate are related to etiology and clinical type of mental deficiency, but such analyses were not included in this study.

3. *Physically handicapped S's.*

Growth rates in social maturation for physically handicapped subjects based on continuous re-examinations have not yet been reported for the Social Scale. However, it will be apparent from the studies reviewed later in this chapter that *average* rates of growth for blind and deaf subjects show a substantially consistent reduction from the normal rate. Thus from one study (p. 527) the average SQ of blind subjects appears to be approximately 60 at substantially all life ages, while from another for deaf subjects (p. 520) it appears to be substantially 80. These observations, however, are based on single investigations with restricted samples and for a relatively small number of subjects at each age. It is difficult to determine from such studies to what extent the annual growth rate is affected by numerous variables.

In the case of orthopedic subjects the growth rate in social competence is specifically influenced by the type and degree of handicap of the particular subjects so that it is difficult to generalize without reference to the nature and extent of the involvement. However, taking orthopedic subjects as a whole there is an approximation toward the average normal rate of maturation (SQ = 94 for Miss Rizzardi's subjects), with a tendency for the SQ to show progressive reduction with increase of age (see p. 535).

Improvement in Social Scale scores resulting from therapy, regimen and training may be expected for physically handicapped subjects according to the nature and timing of such advantages in relation to the type and degree of the handicap. Such results may yield dramatic improvement for short periods of time, especially in the early stages of such opportunities. Or the results may be delayed, intermittent, or relapsive according to circumstances. Such evidence is not readily analyzable in respect to "growth" versus environmental circumstances and should be interpreted cautiously. It may fairly be assumed that the overt expression of latent capacity may fall below the growth potential, or be modifiable within that potential, but is unlikely to go beyond it. The use of NO scores is to be discouraged with such S's but "double scoring" may prove a helpful substitute for segregating the influence of growth from that of opportunity for expression.

II. INHERITANCE

1. *Family strains.*

The practicability and validity of the method were explored with reference to the problem of familial inheritance (Doll, 1937b) on the thesis that "quantitative measurement must replace qualitative estimation in family history study before the inheritance of human aptitude can be clearly understood." The practicability of the method was emphasized as not requiring the presence of the S's (the propositi). This permits ready exploration of family pedigrees over several generations, including S's not living or not geographically accessible, with nearby contemporary informants. Reliability of the method was discussed from the standpoint of environmental modification of hereditary potential, the variation in social standards from generation to generation, the influence of literacy in successive generations, the reliability of individual scores, the conversion of juvenile scores and post-mature scores to scores at adult-prime, and the significance of particular familial trends with reference to the stability of scores in the post-prime period.

Evidence was offered on the use of the Scale in three different pedigrees, namely; (1) four generations of a superior stock including twenty-six propositi, (2) three generations of a sub-cultural stock including twenty-three propositi, and (3) four generations of mentally deficient stock including thirty-two propositi.

The results showed in all three stocks a tendency toward reproduction in kind, but with some regression toward the mean. Individual SQ's were found to be significantly reliable on re-examination by the same examiner using different informants. A marked tendency was noted toward selective upward mating on the part of females, with twice as many females mating upward as downward and by twice as large differences in SQ for all S's. The parent-progeny variation from mid-parent SQ to offspring SQ yielded a correlation of $r = .75$, with median mid-parent SQ at 81.5 and median offspring SQ at 93.5 for $N = 56$ offspring for all S's combined. It was concluded that the method afforded a practicable technique for the quantitative study of human inheritance revealing the degree of variation in human mating and reproduction. (For detailed results in this and other studies the reader is urged to consult the original publications.)

2. *Twins.*

A further validation of the method is found in the study of twins. And the use of the Scale in such studies sheds some light on the nature-nurture problem. A somewhat classical problem may be pursued by comparing the mental ages and the social ages of identical twin pairs, non-identical twin pairs, and sibling pairs. For this purpose we may employ both normal and subnormal subjects whose fruition of hereditary endowment has not been significantly modified by "accidents" of reproduction or of post-natal life affecting organic constitution and function. We may hypothesize that mental age is relatively less influenced than is social age by specific instruction and social stimulation, while recognizing that maturation and experience are reflected in both, the MA presumably somewhat less so and the SA presumably somewhat more.

We may also compare dizygotic twins of like and unlike sex to evaluate the consequences of somewhat dissimilar heredity and somewhat discrete environment in such sibs of identical LA. Likewise we may consider sibs of like and unlike sex as well as of relatively like and unlike age. The problem may further be extended by comparing identical twins, non-identical twins and sibs reared together vs. similar pairs reared apart. And we might enlarge the investigation to include feeble-minded pairs of the same order reared at home, or reared in institutions, or spending part of their lives at home and part in institutions. We might even study (and indeed have studied) twin pairs, monozygotic and dizygotic, where one of the pair is normal and the other mentally deficient or physically impaired (Bradway, 1937a).

Such inquiries should reflect the influence of hereditary endowment vs. the constitutional or environmental modification of such endowment as a potential maturational capacity for capitalizing environmental opportunities through experience. Such a comprehensive investigation might be pursued as a "theme with variations" or a "ringing the changes" on all aspects of the theme.

a. An investigation by Margaret T. Wilson (1941a, 1941b) represents a preliminary appraisal of some of these issues. This study lacked mental ages for normal subjects and omitted the analysis of MA-SA differences for feeble-minded subjects. It likewise avoided the problem of unlike sex in dizygotic twin pairs, and of unlike sex or age in sibling pairs. It dealt with normal subjects reared together in their home environments and with feeble-minded subjects, some of whom were reared at home and some of whom were reared subsequently in institutions. The twin and sibling pairs were either both normal or both feeble-minded.

Miss Wilson's normal subjects included seven identical twin pairs, eight fraternal twin pairs, and fifteen sibling pairs. The median life ages, respectively, were 7.2, 11.4, and 15.5 years. The median social ages, respectively, were 6.8, 10.9, and 15.8 years. The median SQ's, respectively, were 94, 95, and 105. The range of data for all subjects was LA 5-24, SA 4-26, SQ 85-127.

The median intra-pair differences in SA sigma scores were: identical twins zero, fraternal twins .15, sibling pairs 1.03. The range of intra-pair differences of SA sigma scores was: identical twins zero, fraternal twins from zero to .82, and sibling pairs from 0.2 to 2.43.

The mentally deficient S's in this study included ten identical twin pairs, five fraternal twin pairs and fifteen sibling pairs with corresponding data as follows: median LA 20.6, 19.0 and 21.8 years; median SA 5.5, 9.7 and 8.1 years; median MA (1916 Stanford Binet at somewhat unlike dates) 4.7, 7.9 and 7.4 years; median SQ 31, 54 and 47; median IQ 43, 56 and 54. The median intra-pair SA sigma-score differences for the S-pairs were: identical twins zero, fraternal twins .50, sibling pairs 1.40. Median intra-pair corresponding differences in IQ scores, respectively, were .08, .44 and .56.

The trends of these results were deemed in accord with expectation although the amounts could not be anticipated *a priori*. Miss Wilson concluded that intra-pair MA or IQ similarity might even be used as evidence tending to confirm the likelihood of monozygocity or dizygocity.

For present purposes we may infer that the consistency of these results tends to confirm the practicability and validity of the method. But since the majority of the S's were presumably examined by a single examiner and a single informant for each S-pair, it might be contended that the results may contain some spurious influence of examining "aura." This contingency was not explicitly considered in this study as reported, but was controlled in the study by Troup and Lester (below).

b. This preliminary study has since been materially expanded by Marianne H. Wasson (Doll and Wasson, 1944) at the Vineland Laboratory by including a larger number of subjects, a wider variety of variables, more detailed analysis of data, and more specific evaluation of monozygocity vs. dizygocity. Since Mrs. Wasson's results have not yet been published, it is impracticable to include them here except to note that they yield further confirmation of the major hypotheses involved.

c. A slightly modified form of the Scale was used by Helmut von Bracken (1943) and associates in a study of twins conducted at the University of Bonn. Fourteen identical twin pairs and seven fraternal twin pairs between LA's 4 and 13 years, classified according to the method of O. von Verscheuer, were examined with a somewhat abbreviated form of the Scale employing the twins' parents as informants. The interviews were conducted by a number of examiners. Doubtful scores were harmonized in group discussion by the examiners, with final decision rendered by the author. The results showed intra-pair scores identical for the identical pairs, while for the fraternal pairs three intra-pair scores were identical, three differed by one point and one differed by two points. Comparative study of item performances showed identical item scores for the intra-pair identical twins (a result also found by Miss Wilson), while the item scores for the fraternal twins showed no differences for two pairs, one item difference for two pairs, two item differences for two pairs, and three item differences for one pair. The author concluded that the Scale was both practicable and valid.

d. Troup and Lester (1942) studied sixteen pairs of identical twins (based on Rife technique), eight male and eight female, life ages 13-17 years. Binet IQ's (1916 Stanford) were compared with social scale SQ's. Two series of SQ's were obtained, one examiner employing the twins' mothers as informants and another examiner employing the subjects as their own informants. With the mothers as informants the second of each intra-pair examination was made after an interval of from four to six weeks. With the S-pairs as their own informants the examinations were made in immediate succession. Intra-pair comparisons were made by sex for IQ's and SQ's. IQ-SQ comparisons were also made as well as SQ-SQ comparisons for the separate examiners.

For the total group of thirty-two subjects the mean IQ was 96.88 (male superiority 2.63), range 77-107. The mean SQ with subjects informing was 100.10 (male superiority .31), range 74-116. The mean SQ with mothers informing was 101.66 (male superiority 1.06), range 92-110. The mean intra-pair differences were: IQ — boys .875, girls 6.375; SQ (subjects informing) — boys 3.25, girls .625; SQ (mothers informing) — boys .625, girls .750.

The intra-twin resemblances in IQ and SQ for the sixteen pairs disregarding sex were: IQ, Rho = .77; SQ (subjects informing) Rho = .94, SQ (mothers informing) Rho = .98. The IQ-SQ correlations for the sixteen pairs disregarding sex were: (mothers informing) Rho = .30, (subjects informing) Rho = .37.

The reliability coefficient between SQ's for the thirty-two subjects (mothers informing vs. subjects informing) was Rho = .84. It is noted that this reliability may be influenced by the fact that the data were gathered by two examiners as well as by two methods of informing.

The conclusions inferred from this study need not concern us here. (For example, IQ sources and dates were not indicated, SQ's and IQ's were not reduced to comparative variability, or PE's of the measures accounted for.) What is significant for present purposes are the implications regarding the practicability and validity of the Social Maturity Scale on evidence from identical twins. The authors suggest plausible explanations of the apparent discrepancies in the data in their interpretation of the results.

This brief review of twin studies does not do justice to the various issues involved, but does substantiate the value of the Scale in an area where the practicability, reliability, and validity of the method face a crucial test.

III. DEVELOPMENTAL PERIODS

1. *Preschool S's.*

Various students have employed the Scale with preschool children, but these results are not immediately available for publication evaluation. In general these students report (e.g., Florence L. Goodenough, Mary Shirley, Caroline J. Muskat, Ruth T. Melcher) having found the Scale practicable and helpful in the study of young children, in the treatment of parent-child relations, in the analysis of infant behavior problems, in parent education, and as a schedule of child development (Doll, 1940a).

a. Virginia M. Messenger (1940) used the Scale for measurement of social behavior as one aspect of a broad evaluation of the effects of nursery school education. She dealt with such issues as (1) preparation of the examiner, (2) age suitability of items, (3) adequacy of item specification and rules for item scoring, (4) sources of error in item scoring, (5) role of informant.

The author recognized the hazards of mastering the procedure from the brief manual (unsupported by systematic instruction and supervised practice) and that the preparation of her participating examiners "may not have been uniform and adequate." She also noted that more careful specification of items was desirable for precise refinement of scoring (including the standards for "habitual performance" and for NO items). She suggested informant bias and inaccurate observation as possible sources of error, and cited the work of Peterson (1938), Little (1938), and Williams (Skeels, 1938) in this regard.

Peterson (as cited by Messenger) "*tested* certain items in the kindergarten and followed with home visits to obtain the mother's statements as to the behavior which occurred only at home; the examiner had to decide whether or not *test* performance could be considered *habitual* performance" (italics ours). Little interviewed the *teachers* of her nursery school group and the *mothers* of her non-nursery controls. Williams employed direct observation supplemented by information from orphanage matrons or nursery school teachers as informants. (We have elsewhere herein insisted that such variations are departures from standard procedure. Although legitimate for various purposes, they may yield non-comparable data.)

Messenger cited results from three studies but could find no clear explanation for the differences reported. We have not had access to the studies by Peterson and by Little but have briefly commented (p. 490) on the study by Williams. Messenger noted that "Little's findings indicated that superior intelligence did not guarantee a (correspondingly) superior degree of social maturity" (parentheses ours)—a finding amply confirmed by others. She also noted that whereas Peterson and Williams "found a trend in the direction of increase in social maturity," Little "reported opposite effects."

Messenger considered her own results for one segment of her study (Iowa City S's) as not satisfactory because of examining variables. (Three examiners, whose preparation was limited to a study of the brief condensed manual, and of whom one "had had more experience in interviewing parents than had the other two," examined unequal numbers of S's in crossed pattern groups. It was "believed that these examiners, partly because of the equivocal nature of the Scale, did not interpret the items in a uniform manner.")

For the second segment (Stillwater S's) one examiner interviewed the mothers of 16 nursery school children and 16 non-nursery school children at the beginning of the study and again at the end, 20 months later. The respective first mean SQ's were 100.5 versus 109.0, and the second 108.8 versus 100.9. The second means were changed to 111.57 and 98.18, respectively, when "allowances for initial differences in chronological age and social maturity were made in terms of regression of final on initial measures."

Our interest here is directed toward the results and interpretations of this study as they reveal the practicability of the Scale as a research procedure within the ultimate purposes of such an investigation. Apparently the major difficulties encountered by Messenger were: (1) difficulties experienced by her examiners in mastering the Scale from the brief manual alone (unsupported by other instruction, supervised practice, and skilled interview experience); (2) uncertainties of item scoring (equivocal item specification, habitual performance, NO evaluation); (3) age suitability (and refinement of discrimination) of items; (4) adequacy or bias of informants; (5) influence of secondary variables (e.g., social status, intelligence, training) on item performance. Some of these difficulties are resolved or minimized in the elaborated exposition of the technique and data afforded by the present volume.

Two methodological strategies are suggested by the above investigation.

(1) The Scale as presently formulated is a yardstick type of measure for a wide range of maturation (from birth to 25+ years). It is not designed for the refined measurement of particular intervals of its total range but only for their approximate demarcation. It is of course feasible for those interested in limited segments of maturation (infancy, childhood, adolescence, adulthood, senescence) to expand or fractionate these segments for a vernier type of measurement. This requires only a magnification of detail for present items (or the insertion of others) designed to produce finer steps of discrimination—a sort of job-analysis reduction of item performances to their unitary progressive components. Such refinements would permit more exact measurement of small stages of progress for short-term treatment or training programs or for particular types of S's for whom only slight changes are anticipated. Such increased sensitivity of measurement is more easily conceived than it is achieved. However, the framework of the Social Scale seems to afford a suitable design for attaining such a desirability.

(2) Studies which aim to measure the effects of treatment or training should be so designed as to avoid the halo influence of expected results on examiner bias. To this end, the examiner should remain uninformed as to which S's are "experimental" and which are "control," as well as which are being examined prior to, or during, or after the period of treatment or training. Such a procedure would insure freedom from the challenge of anticipatory prejudices which might unwittingly influence the examiner and consequently distort the data. And the PE of measurement should be considered.

2. *Individual infants.*

An uncompleted study from the Vineland Laboratory by Kathryn Fitch Deacon (1939-1949) dealt with repeated examinations of three infant subjects over short time-intervals. All examinations were made by one examiner with the mothers as informants. The first and third infants were siblings. The results were as follows:

a. Infant K. (girl) was examined seven times at one-month and two-month intervals during the first year of life. The first examination, at LA one month, yielded a score of 2 points, SA .12, SQ 145. The other six examinations yielded consecutive SQ's of 72, 84, 58, 70, 83 and 93. Later examinations by the same examiner and same informant at LA 3.8 yielded SQ 113, and at LA 6.9 gave SQ 109. Stanford-Binet IQ at LA 6.9 was 123.

b. Infant E. (boy) was examined seven times between

LA .45 and 1.7 years. These examinations showed progressive SQ's of 78, 88, 81, 87, 88, 104 and 104. Later examination by the same examiner and same informant at LA 5.1 yielded SQ 102 and at LA 8.2 gave SQ 109. Stanford-Binet IQ at LA 8.2 was 106.

c. Infant R. (older brother of Infant K.) was examined 23 times between LA .20 and 3.04 years at intervals of from 1 to 2 months. The successive SQ's during the first year were 45, 56, 81, 92 and 94. In the second year they were 86, 93, 95, 106, 112, 108, 109 and 103. In the third year they were 105, 105, 102, 102, 99, 95, 97, 91, 96, and 95. Later examinations (same examiner and same informant) at LA 6.0 yielded SQ 98, and at LA 9.1 gave SQ 106. Mental tests on this boy showed IQ 113 (Kuhlmann-Binet) at LA 1.3, IQ 120 (Merrill-Palmer) at LA 2.1, IQ 113 (Stanford-Binet) at LA 3.1, and IQ 116 (Stanford-Binet) at LA 9.1 years.

A retrospective examination on this boy, mother informing, made at LA 2.0 years as of LA 1.0 years yielded SQ 91. The standard SQ of nearest LA comparability was 94 (for LA .97 years). A series of such retrospective examinations made at LA 9.2 years as of 1st, 2nd, 3rd, and 6th birthdays gave the following comparative results (all mother-informing):

LA	1	2	3	6	9
Standard SQ	94	105	95	98	106
Retrospective SQ	97	115	93	93	—

These examinations were made from unrefreshed recollections and without consultation of previous examinations. No "baby-book" records other than snapshots had been kept. Note that the SQ obtained at LA 9 as of LA 1 (97) approximated that obtained at LA 2 as of LA 1 (91) and that both these retrospective SQ's approximated the corresponding standard SQ at LA 1 (94). These results suggest a low probable error of retrospective measurements, and are within the limits of variation for standard measurement. (Note that slight variations in SA at very early LA's produce relatively large variations in SQ; e.g., the variation from standard SQ 105 to retrospective SQ 115 at LA 2 above, is attributable to a variation in SA item points from 35 to 36.5.)

An anamnestic item developmental record (see page 294) on this boy at LA 2.0 years (mother reporting age points at first successful accomplishment of items) gave maturation data closely comparable to those obtained from the successive standard examinations. Out of 35 items considered, 13 showed no deviation in recall as compared with successive test records, Items 5 and 13 were recalled as "very late" and "don't remember" respectively, 6 items were recalled as developing later by from 1 to 5 months than the successive records indicated, while the remaining 14 items were recalled as being performed earlier by from 1 to 6 months than the successive records indicated.

A second anamnestic item developmental record at LA 9.2 years (mother reporting) gave the following comparisons with the first appearances of successful item performances as obtained at successive standard examinations during the first three years of repeated close-interval examining:

Five items were recalled exactly, 12 were within ±1 or 2 months, 7 as "before" certain dates (close approximations to records), 6 as "about" certain dates (also close to records), 4 as "between" certain dates (likewise close), 1 as "don't remember" (unable to recall specific date). Other items were displaced by more than 2 or 3 months (2 by one year, 2 by two years, 1 by three years). There was a slight tendency for the more advanced items (after the second year) to be less accurately recalled.

In general the anamnestic report at LA 9 years was closely similar to that given at LA 2 years except for more (though relatively minor) uncertainties. The impression from inspection of the records was that retrospective examining (as of fixed dates) was both easier for the informant and more accurate than anamnestic reports. A tendency was noted for anamnestic recall to be affected by the fatigue-stress of the examining pressure on the informant and the examiner. (No attempt was made in this analysis to compare the item-recall accuracy of the retrospective records themselves except as to total scores.)

A noteworthy feature of the comparative data from the successive standard examinations was the unstable fixation of certain items for this S (Infant R) and the implications for the stability of emergent performances. For 40 items reported at close intervals during the first 3 years, 22 showed sudden emergence of performances which were later sustained. Twelve items yielded one ± score each (emergent success) prior to full success and later sustained retention. Three items showed one ± score each after full success was reported. One item was reported + NO after full success, due to hazards attending performance. Two items showed lapses after full success, with intermittent success and failure, one for nearly a year and the other for a year and a half. (Parents and child-study specialists are aware of such successful self-assertiveness followed by subsequent temporary cessation of the performances for various reasons.)

The reader is reminded that such retrospective and anamnestic records are clinically very useful for "timing" the date of onset of unusual alterations in personal development, e.g., (1) onset of exogenous mental deficiency, mental disorders, behavioral or personality changes, (2) the prognosis of delayed retardation in potential endogenous mental deficiency, or of delayed maturation in potentially normal subjects, (3) the influence of previous treatment procedures or changes in regimen, and other issues. Such retrospective growth curves may be "pinpointed" by increasing the number of retrospective examinations at pivotal age periods where growth alterations may seem to be clinically most illuminating.

3. *Early and late childhood.*

a. Patterson (1943) summarized the results of routine use of the Scale over a period of two years at the Samuel S. Fels Research Institute at Antioch College. Two hundred fifty-three tests were available for 126 children examined at six-month intervals at LA's 6 months to 10 years, plus 33 tests at odd ages and second and third tests for some of the children. There were also 36 tests by a second examiner and 45 based on self-informing procedures.

The mean raw total point scores by LA were closely parallel to (though consistently slightly higher than) those based on the assumption of SQ = 100 as standard. This was consistent with the general IQ superiority of the total sample. (At the time this study was reported, only limited portions of the amplified data contained in the present volume were available in published form. Some of the issues dealt with by Patterson are clarified herein.) The mean IQ's and SQ's were closely similar for three separate age-group samples examined with the Stanford-Binet, Merrill-Palmer, and Gesell developmental scales.

Analysis of the test-retest data indicated satisfactory reliability for a skilled examiner with adequate relation to adequate informants. The author inferred that given such circumstances the main sources of unreliability, other than the Scale itself, were due to the source of information and to seasonal fluctuations in growth.

Validity was considered in relation to LA, MA, behavior and personality, and environment. The principal argument was presented in terms of correlation coefficients for paired terms (which is too involved for simple review here). In general the author found it difficult to separate maturation from training in order to confirm the assumption that social maturity is primarily a genetic characteristic. It was concluded that the Scale "appears to be a reliable and fairly valid measure of an aspect of development which, at the age level studied, might be called independence (in self-help), or self-sufficiency, . . ."

We need not critically evaluate this study except to note that some of its aspects are clarified in the present volume, and to note certain reservations on the use and interpretation of the correlation technique for resolving the issues dealt with. Moreover, our immediate interest lies in the practicability of the Scale as an instrument for exploring, rather than for deciding, such questions as may be soundly investigated by its use.

b. C. Mildred Ceres (1946) examined the variables of different informants (self-informing vs. maternal informing) and of different examiners, with bright normal subjects between 6 and 10 years of age. Fifty-six children from the State University of Iowa Elementary School in grades I-IV were divided into two groups of 28 each, matched for chronological age and grade placement. Binet IQ's (Form L) available for 42 of the S's at the time of their admission to kindergarten ranged from 95 to 163 with a mean of 126, SD 12.4. Two investigators, who had studied the Social Scale and obtained some practice in its use, interviewed the children at school; investigator A examined the children of Group I, and investigator B the children of Group II, as their own informants. After an interval of from 6 to 28 days investigator A examined the children of Group II, and investigator B the children of Group I, with the mothers as informants.

Precise evaluation of these results is difficult because of the interlocking variables. Although the children were matched for LA and grade placement, it is not clear that they were of equal mental ability (the IQ data were not analyzed for the groups separately and were taken as of kindergarten entrance). The differences between the two types of informants (the children themselves and their mothers) cannot be clearly separated from the presumptive differences between the examiners, and vice versa (the examiner of the children in one group being the examiner of the mothers in the other group).

We reproduce here part of Miss Ceres' Table I (omitting data for examiners combined). Focusing on the SQ data in this Table we have computed the following comparisons:

TABLE I (Ceres)

MEAN SCORES OBTAINED ON THE VINELAND SOCIAL MATURITY SCALE FOR GROUPS I AND II

		Group I		Group II	
Informant		Children	Mothers	Children	Mothers
Interviewer		A	B	B	A
Number		28	28	28	28
Life Age:	Mean	8.2	8.2	8.6	8.6
Total Score:	Mean	77.9	79.0	76.4	81.0
	SD	5.3	4.9	6.0	2.8
Social Age:	Mean	10.3	10.6	9.8	11.2
	SD	1.5	1.6	1.7	.9
Social Quotient:	Mean	125.5	129.3	120.5	137.8
	SD	13.2	11.0	9.6	9.6

(1.) The mean of S-informing (self-informing) SQ's is 5 points higher for Examiner A with Group I as compared with B for Group II.

(2.) The mean of M-informing (mother-informing) SQ's is 8.5 points higher for Examiner A with Group II compared with B for Group I.

(3.) The mean SQ of M-informing versus S-informing is 12.3 points higher for Examiner A (M-II vs. S-I) and 8.8 points higher for Examiner B (M-I vs. S-II).

(4.) For Group I the mean SQ of M-informing (Examiner B) is 3.8 points higher than for S-informing (Examiner A), and for Group II is 17.3 points higher with examiners reversed. (This is the largest and most reliable difference and reflects the heaviest consolidation of divergent trends).

(5.) The mean SQ of M-informing (examiners and groups combined) is 10.6 points higher than for S-informing.

(6.) The mean SQ for examiner A (informants and groups combined) is 6.8 points higher than for Examiner B.

(7.) The mean SQ for Group II (examiners and informants combined) is 1.8 points higher than for Group I.

This analysis suggests that A was more lenient than B (or B more rigorous than A) on S-informing and still more so on M-informing, and that both A and B were more lenient on M-informing. (We have elsewhere noted a tendency for *self*-informing to yield somewhat *higher* scores than standard informing. But here the *mother*-informants seem to have yielded higher scores because of interview reports which the examiners either did not or perhaps could not control.) Such evidence on "examiner bias" (without derogatory implications) resolves the discrepancy in Table I (Ceres), in which for Group I the mean SQ for M-informing is 3.8 SQ points higher than for S-informing, whereas in Group II the corresponding difference is 17.3 SQ points. The mean informant difference in Group I appears to be only about one-half as large as it would have been had the examiners displayed the same standards of examining, while in Group II the difference seems about twice as large.

Similar inferences are apparent in other aspects of this study from the progressive order of item difficulty for (1) examiner A vs. B, (2) mothers vs. children as informants, (3) younger vs. older children, and (4) these subjects vs. the normative standardization.

In her Table II Miss Ceres presents the results from S-informing for younger versus older children by both examiners, and in her Table III the similar data from M-informing. These tables (not reproduced here) are particularly interesting as revealing differences in the examiners as follows: (1) examiner A with the *children* as informants in Group I found a mean superiority of 4.8 SQ points in favor of the *younger* children; (2) the same examiner with the *mothers* as informants in Group II found a mean superiority of 18.6 SQ points in favor of the *younger* children; (3) examiner B with the *children* as informants in Group II found a mean SQ difference of 4.9 SQ points in favor of the *older* children; and (4) the same examiner with the *mothers* as informants in Group I found a mean SQ difference of 1.2 SQ points in favor of the *younger* children. Recalling that the children in the two groups were not the same, and that the children and the mothers were reversed in the two groups for the two examiners, the following inferences seem warranted: (1) examiner A was more "lenient" than examiner B, (2) more lenient with the younger than with the older children, (3) still more lenient with the mothers than with the children, and (4) most lenient with the mothers of the younger children; (5) examiner B was more lenient with the older children, and (6) more lenient with the mothers (but by a much smaller amount than was A); (7) examiner B was the more consistent examiner; and (8) the results from the mothers were consistently higher throughout.

It may be inferred that such variable results are more properly attributable to the susceptibilities of examiners than to the inadequacies of informants. In other words, the age and status of the informant in relation to the age and status of the examiner are relevant variables. This in turn leads to an inference that the Social Scale can be used *as a measure of examiner's bias* as well as for determining the social competence of the S or the idiosyncracies of the informant. These tendencies materially obscure results when data are pooled without regard to the variables involved. In the present study the most significant deviation is on the part of examiner A with younger children, with mothers as informants in Group II.

These inferences are noted here as a caution to other workers concerned with the experimental evaluation of the influence of such variables. They are strengthened by the analysis of item successes (as Miss Ceres has well done) where the effect of the variables is rather clearly reflected in item performances but obscured in the total scores. Moreover, the item analyses in this study reveal some specific sources of difficulty in the use of this scale at the apprentice stage of practice. The novice examiner accustomed to "testing" finds interviewing at first disconcerting because less structured. And the criterion of *habitual* performance is at first variably construed. Yet this study also shows that the net effect of such apparently subjective judgments may prove comparatively small in amount. Nor may we forget that the most objective examining is never totally free from subjective influences.

From this study we feel strengthened in the conviction that the major responsibility for accurate use of this scale devolves on the examiner rather than on the informant. While the examiner cannot completely control the informant, he can by skillful use of the interview technique materially reduce his own biases as well as those of the informant. Consequently we repeat that it is incumbent upon the examiner not to relax his own objectivity nor permit himself to be misled by the vagaries of the informant. From this standpoint this study affords a material substantiation of the value of the instrument as a measuring device. It also (as Miss Ceres concludes) suggests the desirability of more precise exposition of the examining technique (which is the aim of this book) than is afforded by the condensed manual previously in use, as well as the need for systematic individual instruction and practice in the use of the method.

c. The Scale was used by Margaret Reed Deinzer (1939) as one of several measures of maturation in a study of 147 children from the Nursery School through the sixth grade of the University of Michigan Elementary School. Social age scores were compared with other age scores equated to the same date, namely, mental age (Kuhlmann-Binet), reading age (Gates Reading and Stanford Achievement Tests), dental age (dental X-rays), carpal age (X-rays of wrist bones), height age, and weight age. One hundred thirty-one S's were available for comparable data. Life-age range was from 4 to 12 years, median 7.8 years; IQ range from 72 to 158, median 118; social-economic status (Sims Score Card) principally superior (54 per cent in Group I and 38 per cent in Group II).

The Scale was administered by a single examiner, each child serving as his own informant except that in the nursery group the informant was the S's teacher, supplemented in some instances by the parent. The results were reported separately for 94 S's from grades I to VI inclusive, and 37 S's from the nursery school. (This abstract deals only with the former group since the nursery group was of limited age range, small number of S's, and different method of examination.)

For the grade school group, the mean ages were: LA 8.7 years, MA 10.2 years (IQ 117), SA 11.0 years (SQ 126), reading 9.6 years, height 9.7 years, weight 10.1 years, dental 8.7 years, carpal 9.1 years; with SD's ranging from 1.8 (dental) to 2.8 (social and reading).

It will be noted that the mean SQ was above the mean IQ which is contrary to most other studies of S's of superior IQ. This may ensue from (1) the self-informing method of examination, (2) personal equation of examiner, (3) differences between Kuhlmann-Binet IQ vs. Stanford-Binet IQ (most other studies having used Stanford-Binet), or (4) educational or environmental influences.

The author presents a table of raw correlations between the various trait measures, supplemented by a table of partial correlations with LA held constant. In the former table the correlation range is from $r = .70$ (SA — weight) to $r = .95$ (MA — reading). The means of the raw correlations of each trait with each of the others range from $r = .78$ for social age and for reading age to $r = .82$ for mental age and for carpal age. When controlled for the influence of LA, the coefficients for all pairs range from $r = .19$ (SA — weight) to $r = .87$ (MA — reading), while those for SA range between $r = .19$ and $r = .39$ for all variables except MA which is $r = .74$.

From these data the reader may infer (the author does not develop this inference except by implication) that all traits considered showed a common dependence upon some central (maturational ?) factor which is hypothetically inherent in LA as a developmental index, and that the correlation between traits is largely dependent upon this variable.

For the SA variable it may be inferred that the inter-correlations with other traits are chiefly due to the LA variable except in the case of mental age upon which social age is heavily dependent. These inferences would be in accord with logical expectation, although not altogether justifiable from the data as developed. It would seem necessary to expand the treatment of data through tetrachoric or factorial analysis for a more exacting statistical proof.

Here again we are not primarily concerned with the consequences of a particular study so much as with the implications from such a study as to the practicability and validity of the Social Scale for scientific experimentation. In the Deinzer study it would seem that the Social Scale proved practicable and valid as a consistent measure in a broad analysis of the total concept of individual maturation. Such an attack upon the problem as is presented in this study suggests the practicability of "testing" the concept of social maturity and the validity of its measurement by comparison with other measures and concepts of human maturation.

4. *Early and late adolescence.*

a. Margaret T. Wilson (1939) employed the Scale with thirty girls at 10 and 11 years of age in the 5th and 6th grades of a parochial school in the vicinity of metropolitan New York. Results from the Social Scale (self-informing procedure) were compared with results from the 1937 Stanford-Binet and the Pintner Aspects of Personality Test. All examinations were made by the author over a period of four weeks. All the S's were native-born (66 per cent American-born fathers, 27 per cent Irish, 3 per cent French, 3 per cent German). Social status classification was indicated by 6 fathers in common labor group, 12 in skilled labor group, and 6 in semi-professional and business group.

The range of subject IQ's was 90-127, SQ's 90-118. Mean IQ was 108.6, SD 10.7. Mean SQ was 105.5, SD 7.9. Mean IQ-SQ difference was 3.1, CR .23. The correlations (technique of computation not indicated) were .71 for MA-SA, and .90 for IQ-SQ (but note narrow range and limited N).

The correlation of teachers' estimates of intelligence (for five categories) with obtained IQ was .03; for estimates of social competence with obtained SQ was .51; for estimates of intelligence with obtained SQ was .55; for estimates of social competence with obtained IQ was .53; for estimates of intelligence with estimates of competence was .70. These data led the author to infer that there is a tendency for teachers to estimate pupil intelligence in substitutive terms of social competence. The author's data also reveal a tendency for teachers to estimate in terms of brightness rather than level, as well as by attainment rather than capacity. (Mental tests themselves are measures of expressive attainments from which capacity is inferred.)

The correlation coefficients between social scores and personality scores (considered in categories of ascendance-submission, extroversion-introversion, and emotional stability) were generally of low significance. The highest coefficient was —.45 for SQ with emotional stability, but this tends to vanish when corrected for divergent correlation for LA on both terms.

The author concluded that social competence varies concomitantly with intelligence but not with personality (all as here measured). We are not so much concerned here with this conclusion (which is based on a limited number and range of subjects and criterion measures) as with the practicability of the Scale as a means of studying the variables considered.

b. Epes W. Sargent, Jr. (1937) compared the social maturity scores of 50 high school seniors (New Brunswick, N. J.) with those of 50 college freshmen (Rutgers University), all in their eighteenth year (mean LA's 17.5 and 17.6, respectively). The selection of S's was otherwise uncontrolled; some were passing and some failing in scholastic work in both groups. However, 42 of the college S's versus 21 of the high school S's were from POC above skilled labor, while no college S's versus 18 high school S's were from common labor POC. IQ's (Otis Self-Administering) were available for 22 high school S's with range from 88 to 137, median 117; for 49 college S's the range of percentile standing (Henmon-Nelson) was from 8 to 98, average 59. The high school S's were still living with their parents, while most of the college S's were living away from home.

Twenty items (87-106) from the Social Scale were employed with self-informing procedure. (The author notes that at this age self-informing may reveal performances of which other informants may be unaware.) The standard procedure was modified by employing 26 specific questions (formulated in the general spirit of the standard procedure for strict comparison) supplemented by some elaborative questions and fortified by checks for internal consistency. No difficulties were encountered in conducting the interviews or in maintaining adequate rapport. For the high school S's the SA range was from 15.8 to 20.0, mean 17.9; for the college S's the SA range was from 16.7 to 22.3, mean 18.4. The corresponding SQ's were from 90 to 111, mean 102, SD 4.5, and from 97 to 127, mean 106, SD 5.7. (It will be recalled [Table 5, p. 376] that the normative SQ for LA 17.6 is 101, SD 8. Hence the mean differences between the two groups as well as between each of them and the normative data were within ± 1SD.)

The IQ-SQ correlations were low and unreliable ($r = .20$ for high school S's and $r = .00$ for college S's). The author noted the narrow range and small N.

Item analysis showed the college S's superior on all items (except 4 which were passed by all S's), with one-third or more superiority of passes on five of 20 items receiving 14 per cent or more of high school passes. The author compared the obtained order of difficulty with the standardized normative order but the displacements were difficult to evaluate because of the differences in the (a) samples, (b) informants, (c) examination procedure, (d) criteria for establishing order of difficulty. Considering all variables it seems (to us) that the normative order of item difficulty was rather well sustained. (The author's rank order of item difficulty was based on per cents of item passes for a single age group, whereas the standardized normative order is based on the means of passes for consecutive age groups.)

In commenting on his results the author pointed out the significance of social maturity for college entrance and high school guidance, urging that measurement of intelligence and scholastic attainment be supplemented by correlative measurement of social competence. He concluded that "the Vineland Social Maturity Scale appears to define norms of social behavior around which it should be possible to plan for the redirection of socially immature persons."

5. *Senescence.*

In a preliminary study of the period of involution Doll (1942a) reported Social Scale examinations of 13 mentally and physically once-normal male subjects between the ages of 65 and 80 years of age. (For related data for mentally deficient S's see p. 559.) At these ages it proved difficult to obtain an adequate representative sample. The S's were therefore considered as a group of individuals in the advanced years without reference to their proportional representation in the total population. Less difficulty was encountered in obtaining subjects at these ages for the higher levels of social competence than for the lower ranges of competence (e.g., subjects of limited schooling and the lesser degrees of occupational skills).

Eight of the 13 subjects were living at home, 3 were almshouse inmates, and 2 were residents at an old-age colony. Three scores were obtained for each subject, namely, *ad hoc* SA at the time of examination, retrospective SA at LA 50, and retrospective SA at LA 25. In the case of the almshouse and colony subjects, SA's were also obtained as of the LA at the time of admission to the almshouse or colony.

One of the S's living at home yielded SA 19.7 years at the time of examination (LA 66 years). His SA was 26.0 years at LA 25, and SA 30+ years at LA 50. The history of this S showed marked alcoholism after LA 50. The other seven S's in this group (living at home) all yielded SA's above 25 years at LA's ranging from 65-81 years. All but one of these S's showed increase in SA from LA 25 to LA 50, with mean increase for the others of 2.6 years. In decreasing order of their SA's at LA 50, one of these S's showed no SA loss at LA 70, one had lost 2 items at LA 75 (with SA remaining at 30+ years), one had lost 3 years at LA 76, one had lost 2 years at LA 71, one had lost 1.5 years at LA 70 (spine injured at LA 50), one (who had showed no SA increase between LA 25 and 50 years) had lost one year at LA 81, and one showed no loss at LA 65.

Of the three almshouse S's the retrospective SA's at LA 25 were 24.0, 23.5, and 21.0 years. At LA 50 these three S's yielded retrospective SA's of 25.5, 23.0, and 21.0 years, respectively. In the same order these S's at the time of contemporary examination yielded the following LA's and SA's: LA 69, SA 19.3 (alcoholism after LA 50); LA 75, SA 7.8 (physically very feeble); LA 78, SA 16.0. These 3 S's (in the same order) were admitted to the almshouse at the following LA's and with the following SA's, respectively: LA 65, SA 21.0 years; LA 70, SA 19.3 years; LA 75, SA 21.0 years.

Both of the two S's living at an old-age colony (each at contemporary LA 78) were of low average SA at LA 25 (SA 23.0 and 22.0) and had showed no gains at LA 50. Neither of them showed SA loss at LA 70 (when admitted to the colony), but one had lost 3.3 years, and the other had lost 7.9 years, at LA 78 (the former S was affected by severe rheumatism and the latter by serious physical breakdown after LA 70 years).

The results of this study led to the conclusion that the Scale was both feasible and apparently valid for contemporary and retrospective use for such subjects. The study as a whole suggested a tendency toward positive correlation between longevity and social competence.

6. *Retrospective growth records.*

The previous studies in this section have dealt with particular maturational periods. One of the many unreported trial studies undertaken at Vineland (Vineland Research Staff, 1936) dealt with continuing maturation for individual life histories, employing retrospective, self-informing, and self-examining procedures.

TABLE 20

SAMPLE DATA ON CONTINUING MATURATION OBTAINED BY VARIOUS PROCEDURES

S	Type of Exam.	Inform.	Exm'r.	LA	SA	SQ
A	Retro.	Self	KPB	14.5	15.0	104
	Retro.	Self	KPB	18.5	18.3	99
	Retro.	Self	KPB	22.3	26.0	117
B	Retro.	Self	Self	13.7	15.8	115
	Retro.	Self	KPB	18.0	23.8	132
	Retro.	Self	KPB	22.0	27.0	123
	Now	Self	KPB	30.4	28.0	112
C	Retro.	Self	Self	17.3	18.7	108
	Retro.	Self	Self	18.9	19.5	103
	Retro.	Self	Self	23.2	25.0	108
D	Retro.	Self	Self	17.5	19.5	111
	Retro.	Self	KPB	20.7	28.0	135
	Retro.	Self	KPB	22.5	28.5	127
	Now	Self	KPB	25.8	30.0	120+
E	Retro.	Mother	Self	1.7	1.9	112
	Retro.	Self	Self	16.1	16.3	101
	Retro.	Self	Self	17.6	17.5	99
	Retro.	Self	Self	18.5	17.7	96
	Retro.	Self	Self	21.8	24.4	112
	Retro.	Self	Self	22.8	25.0	109
	Now	Self	Self	25.6	28.0	112
	Now	Self	ELH	25.6	28.0	112

Table 20 incorporates samples of such comparative data bearing on the practicability of such use of the Scale and the consistency of results obtained. In some instances the examiner was also his own self-informant. The table is self-explanatory and the reader may draw his own inferences. The successive columns of the table show: the S's (Subject A is male, the others female), the type of examination (retrospective and "now" — at time of present study), the informant, the examiner (who is sometimes also self-informant), the successive LA's, SA's and SQ's.

These data suggest possibilities for more extensive study of such variables.

IV. SOCIAL VARIABLES

We proceed now to a consideration of the influence of social circumstances on social maturity scores and the practicability of the Scale as a method for investigating such influences. Following is a resumé of a number of preliminary investigations dealing with the influences of social status, social dependency, nationality, race and color, all within the U. S. North American environment.

1. *Socio-economic status.*

Brewer and Goodman (1939) considered the Scale as a standardized instrument for use in social casework. They suggested that in view of the limited number of objective measurement devices in this field this scale affords a practical means for field work and research. After calling attention to the various ways in which the Scale may be used and the purposes which it may serve, they illustrated the argument by an analysis of the relation of social status to social competence by comparing social maturity scores with paternal occupational class.

Social status for 586 S's from the normative standardization sample of 620 (omitting S's whose paternal occupational class was uncertain) was expressed in terms of paternal occupational class (POC) as derived from the Minnesota Occupational Scale. The SQ's of the juvenile S's were converted to adult SQ comparability by means of the simplified formula:

$$SQ_A = 100 + 7 \frac{(SQ_O - 100)}{(AD_X)}$$

where SQ_A is the obtained SQ converted to adult variability (see p. 379). SQ_O is the obtained SQ, AD_X replaces SD_X, 7 is the mean adult AD of SQ, and 100 is the mean SQ for all age levels.

This POC-SQ relation yielded a mean square contingency coefficient of C = .42 for a 6 x 8 table of entries with SQ's at 10-point intervals. The median SQ_A for each occupational class showed a steady regression from SQ = 105 at POC I (highest paternal occupational class) to SQ = 95 at POC VI. Conversely, there was a regression from a median POC of 3.73 for SQ 110-119 to a median POC of 4.52 for SQ 80-89. The authors noted that although there was a reduction in median SQ with reduction in POC, these medians fell within the normal range of the distribution, with 72 per cent of all S's between SQ 92-110.

In the absence of MA data for these S's the authors speculated on the presumptive influence of MA on both terms of the SA-POC relationship somewhat as follows:

(1.) POC tends to be a consequence of paternal MA.

(2.) Paternal MA tends to be transmitted to progeny.

(3.) Hence POC is selective for progeny MA, but with some regression toward the mean.

(4.) SA tends to be directly related to MA, and SQ to IQ, but there is some tendency toward inverse capitalization of MA for SA, and IQ for SQ, with consequent regression toward the mean.

By such reasoning the authors inferred that there is a tendency for S's from superior social status to produce mentally superior offspring, but by reason of environmental protection the progeny reflect some tendency toward *relative* social immaturity, the reverse being true for S's from inferior social status. Hence *in the long run* the positive correlation between environment and competence is a result of compensatory trends (aggravation and neutralization) between nature and nurture, a kind of social homeostasis which is maintained in spite of regressive tendencies in both horns. The merits of this argument do not concern us here so much as do the merits of the Scale for exploring the argument.

2. *Marginal social status.*

a. The Scale was used by John A. Clausen (1940) in a study of familial incompetence in a single family of subcultural stock comprising 14 related households in the vicinity of Ithaca, New York. The 91 propositi were principally of subnormal mental and social status with heavy incidence of dependency, mental deficiency, criminality, educational retardation and other evidences of social pathology.

Social quotients were obtained for 25 S's in four generations. The standard procedure of the Social Scale was modified by pooling data from social casework records with direct observations of performance and supplementary partial interviews. Inspection of the household charts reveals the 25 SQ's distributed as follows: 1 at 36, 2 at 47-48, 3 at 50-58, 3 at 62-64, 12 at 71-79, 3 at 83-89 (all sibs), 1 at 104. (The SQ's were not treated systematically and were not arrayed in relation to other variables).

The author found the social incompetence of these S's most apparent in the upper levels of communication, self-direction, socialization and occupation, with least deficit in self-help and locomotion (although the latter was associated with rather frequent misconduct). Apparently the use of the Scale revealed the direction and degree of the social inadequacies. The author was inclined to attribute these inadequacies to limited environmental stimulation. While the study did not permit objective interpretation of cause and effect, the evidence suggested that the environmental opportunities were inadequately capitalized and that the S's revealed low degree of initiative and resourceful independence.

Our concern here lies not so much in the speculative explanations which obscure the nature-nurture problem as in the use of the Scale as a practicable means for gathering factual data for the objective investigation of this problem. The relative extent to which environmental circumstances both reveal and modify competence remains to be resolved. Our interest here is directed toward the use of the Scale as a valid means of assisting that resolution. And this interest extends to the numerous variables whose relationships must be reduced to clear analysis before the intricate complex can be fully comprehended.

b. George A. Muench (1944) used the full Scale, as well as an abbreviated form, in a follow-up study of eight marginal mental defectives from a larger group originally reported by Doll (1927). Four of the S's restudied by Muench had been previously diagnosed as "borderline normal" and 4 as "borderline feeble-minded" without the use of the Social Scale. Muench found that eighteen years later all of these 8 subjects appeared to be socially adequate as revealed by a social index derived from the Social Maturity Scale (this index having a correlation of $r = .84$ with the full Scale). The 4 S's who were considered feeble-minded at LA 14 years had apparently "outgrown" or otherwise "overcome" such diagnosis at LA 32 years. This change in status the author attributed to environmental influences rather than to delayed maturation or to mistaken initial diagnoses. No evidence was offered on the presumed influence of environment, and it seems to us that the reverse interpretation is more valid. At any rate, the results from the Social Scale were in accord with other data which plausibly indicated that at the time of follow-up none of these S's could be classed as socially incompetent. One can only speculate how the use of the Scale, had it been used retrospectively (as of 1924) at the time of reconsideration (1942), might have modified the original diagnoses, or might have predicted the adult social competence of these S's. Nevertheless, Muench's use of the Scale, both standard and modified forms, appears to have yielded critical evidence on what appears to have been pseudo-feeblemindedness. This inference is materially supported by other changes (e.g., correlated improvement in intelligence and achievement) in the S's which suggest generalized ontogenetic delay in total maturation.

3. *Dependent children.*

a. Margaret G. Hayden (Doll, 1940a) compared the social competence of 29 orphanage children and 29 children living in their own homes, matched for LA, MA, and IQ (LA 14 and IQ 100, approximately). The mean SQ of the institutional subjects was 99.5 (mean IQ 102.9), and of the non-institutional subjects was 109.8 (mean IQ 103.6). The difference in mean SQ between the two groups was statistically reliable. Raw correlations between IQ and SQ were .29 for institutional S's and .39 for controls, and for the SA - MA relationship were .46 and .65 respectively. The size of these correlations (method not stated in report available to us) was influenced by the limited range of the distributions.

b. In a pioneer study of the effect of environmental stimulation on dependent children, Harold M. Skeels and others (1938) employed the Scale as one measure of the effect of orphanage residence on young children and of the influence of preschool attendance within this environment.

The material and social environment of this orphanage was described as markedly subnormal for maturational stimulation. However, the children receiving preschool instruction showed rapid initial improvement in SQ following such instruction, as compared with a control group not receiving such instruction. Both groups showed a tendency toward decreasing SQ with increased length of residence, but the initial comparative superiority for the preschool group resulting from school attendance was fairly well maintained.

The issues studied by these investigators posed a rigorous test of the Scale because of: (a) the abnormal (destitute) environment, (b) the early ages of the S's, (c) the relatively short time intervals between successive examinations, (d) the complex of variables, (e) the rapidly emergent nature of the items at these ages, (f) the inadequacy of the informants due to brief acquaintance with rapidly growing children, and so on. The success with which the Scale was used in spite of the research difficulties confronting the investigation appears to have been materially influenced by the reliability of the method and the apparently low probable error of the measure.

This intricate study represents an early use of the Scale (begun in 1935) under severe requirements and without benefit of presently available evidence and experience. Nevertheless the consistent trends of the data in the matrix of the total investigational framework of which this unit was only a part suggest a favorable degree of practicability of the method. As for the significant results obtained by its use the reader is referred to the report as a whole which is too involved for evaluative digest here.

c. William Goldfarb (1945) used the Scale as one measure of the effects of early psychological deprivation. He studied 15 infants (9 boys, 6 girls) who had been admitted in early infancy to a child-caring institution (mean life age of 4.5 months) and who were subsequently transferred to foster homes (at 37 months). These S's were paired with control S's who had entered foster home care without prior institutional placement at nearly the same age (mean age 4.0 months) as the experimental group had entered the institution, and who had remained in foster care thereafter. The study was designed to investigate the effects of early institutional environment on the later development of children reared subsequently in foster homes.

The experimental S's were first tested at mean age 34 months, transferred to foster homes at 37 months, and re-tested at 43 months (time between tests 9 months, foster home residence 6 months). The control S's were first tested at mean age 35 months and re-tested at 43 months (time interval 8 months, foster home residence 39 months).

The groups were markedly similar in social and maternal background (true fathers for the most part unknown). The experimental group was somewhat superior in respect to the educational and occupational status of the mothers. The experimental S's were also favored on foster home placement in that the foster fathers of the experimental group were occupationally superior to those of the control group. The experimental atmosphere was generally favorable to the investigation.

The mean IQ (Cattell-Stanford) at first test for the experimental group was 68 (SD 7.3) and of the control group 96 (SD 28.8). At second test the mean IQ's were 76 (SD 2.8) and 102 (SD 10.9) respectively. (The SD's are of special interest, but note small N. The data here quoted are all decimal approximations from the author's figures.) Similar results were obtained for Merrill-Palmer IQ's except that the two groups were in appreciably closer agreement both between themselves and between retest scores. (The initial IQ difference between the two groups is not explained by the author but is by implication attributed to the presumptively more favorable early environment of the control group.) Similar results were obtained for language use. In motor coordination the two groups were closely comparable.

Results from the Vineland Social Maturity Scale yielded mean first SQ's of 101 (SD 17.2) for the experimental group and 103 (SD 11.6) for the control group. The mean second SQ's were 88 (SD 11.8) and 109 (SD 22.4) respectively. (Again the SD's are of special interest.)

Whereas the initial differences in IQ between the two groups were fairly large and reliable (D = 28.3, t = 3.7 for Cattell-Stanford; D = 11.6, t = 4.1 for Merrill-Palmer) the initial SQ differences were negligible (D = 2.8, t = .52). This initial differential is attributed by the author to the *greater* stimulation of the *institutional* home which presumably encouraged a larger measure of independence and routine and a larger capitalization of basic IQ (IQ 68, SQ 101), while presumably the foster home may have encouraged a larger measure of dependency (ensuing from presumptive foster parent solicitude) and a lesser capitalization of IQ (IQ 96, SQ 103).

Following foster home placement the mean SQ of the experimental group was appreciably reduced (from 101 to 88), while that of the control group was materially increased (from

103 to 109) but by only half the corresponding amount. The author attributes this ultimate difference in part to the trauma of separation from one environment to the other, but inclines to an alternative explanation that the experimental group was somewhat overstimulated in the institutional environment and somewhat understimulated (relatively) in the foster homes. (This is in general accord with the thesis that superior environment tends to prolong the period of dependency during infancy but tends to favor later ultimate maturation.) More particularly, the author concluded that early institutional residence tends to be detrimental to ultimate psychological development, particularly in the field of emotional organization and social relationships.

Again we are not so much concerned with the conclusions from this and similar studies as with the practicability and validity of the Social Scale as an investigational procedure. This study is therefore reviewed here with reference to the use of the Social Scale as a method of inquiry regarding the problem of environmental modification of social competence. By comparing the results of this study with the preceding study by Skeels and others it will be seen that two separate questions are involved, namely, whether the Social Scale scores are spuriously affected by environmental circumstances or whether the scores may be used to investigate the effect of these circumstances. In respect to the latter problem it is important to note that the categorical "loading" of items at different SA levels should not be ignored since it is possible that differences may be found in respect to the various categories. Thus the self-help items are comprised chiefly within the first eight years of life, while the self-direction items (which might be considered as superior stages of self-help) are above these years. Within the age span covered by the Goldfarb study and the Skeels study this influence would not be particularly apparent, but attention is called to its possibility in all such studies employing comparative analysis (cf. Table E, p. 577).

Such analysis of differential item and categorical contribution to total scores often illuminates the influence of particular environments. Thus for two children obtaining the same score in different homes one score may be composed of a preponderance of self-help items and a minimum of communication items, while in another case the reverse might be true. This is in accord with Goldfarb's observation that the institutional environment appeared to foster independence at the expense of maturation, while the foster home encouraged maturation at the expense of independence.

In such studies as these one must also reckon with the possibilities of spurious measurement in *both* terms. For if the measurement scores in *either* term are invalid, the ensuing inferences may also be invalid. Nor may we ignore the comparative validity of measurement in infancy as compared with later years, the probable error of measurement as such, and particularly the many reservations which surround the concept of quotient score constancy. While the general trends of individual maturation may be relatively constant within major limits, their minor variabilities should not be overlooked for short-term segments of the total developmental period. Moreover, some of these trends suggest accelerated maturation (delayed development) and others deceleration (delayed retardation). Some clinical evidence on these issues is offered in Chapter 14.

d. In a similar study Goldfarb (1943) investigated the prolonged effects of early institutional care. An experimental group of 15 children (8 boys, 7 girls) who had spent three years of their infancy (between 4 and 43 months) in an institution and the next eight years in foster homes was paired with a control group of similar background who without institutional residence had been placed in foster homes at 14 months of age. The only apparent difference in the two groups was the fact that the experimental group had spent three of their earliest years in an institutional environment. This environment apparently was superior to that of the foster homes as rated on the Minnesota Urban Home Status Index. The institution (by implication) was deficient in establishing in the child a sense of personal security and affection which (by implication) was accomplished in the foster homes of the children so placed without institution residence. It appears from the results that the post-institutional placement was not effective in overcoming an implied "blighting" effect of the institutional environment.

At the mean age of 12 years both groups were examined with an extensive number and variety of devices for the measurement of intelligence and concept formation, personality data, school adjustment, social maturity and speech. The family backgrounds, foster-home environments and behavior adjustment were carefully evaluated. In spite of apparently similar background and presumptively equivalent native endowment (inferred from background) the control group was markedly superior to the experimental group in practically all particulars of the measurement program. Thus the Wechsler-Bellevue full scale yielded a mean IQ of 72, SD 10, for the experimental group and 95, SD 9, for the control group (D = 23, t = 6.43). This difference is not explained by the author and is not easily comprehensible except as the three years of institutional residence exercised an inhibitory effect on the later expression of endowment. All results of the other measurement devices are in general accord with this basic difference in intellectual level.

We are here particularly concerned with the results from the Social Maturity Scale. The experimental group at the time of examination (LA 12 years) yielded a mean SQ of 79, SD 8, while the control group yielded a mean SQ of 99, SD 12, a result (D = 20, t = 5.28) which is closely comparable to mean expectation from IQ standing, both groups showing favorable IQ capitalization but the experimental group relatively more so (SQ - IQ difference 7 points for the experimental group and 4 for the control group). These results from the Social Scale are in accord with the other results from the investigation as a whole, which suggests that the difference between the two groups was causally related to the early institutional residence on the part of the experimental group, a difference which was not overcome following eight years of post-institutional foster home environment.

Again we are not so much concerned (for present purposes) with the results and implications of this classical study but rather with the usefulness of the Social Scale as an investigational procedure and the significance of the evidence therefrom in relation to such an investigation. Consequently the arresting implications of this and similar investigations are here subordinated to the feasibility of using the Scale in such settings.

4. *Culture groups.*

a. (Nationality derivation.) Jane B. Sill (1936) made a comparative study of the social competence of intellectually subnormal Italian and Jewish girls in the Manhattan (New York) Industrial High School for Girls. Results from the Social Scale (Experimental Form A) were compared with results from the Otis Intermediate Examination (Form C), the Pintner Non-Language Test, the Goodenough Drawing Test, and the data obtained from social interview, including paternal occupation. The Social Scale was administered at the subjects' homes. The "informant" sometimes consisted of the whole family but was usually the mother, no difficulty being encountered in obtaining ample information.

The S's were 13 girls of Italian family background and 13 of Jewish background drawn from the extension classes maintained for girls from ungraded classes, or candidates for these classes, in the New York City public schools. The proportion of Italian and Jewish girls in these classes was 49 per cent and 18 per cent respectively, with indications that the Italian element in these classes was larger than their proportion in the general population from which they were drawn. The groups were equated for LA and Otis MA. The LA range was from 15.1 to 16.1 years, mean LA 15.7, for each group. The Otis MA range was from 7.7 to 9.2 years, mean MA 8.4 for each group. (The ratio of these MA/LA means gives a mean mental quotient of 54.) The mental age range for the Pintner Non-Language Test was from 8.5 to 15.3 years, mean MA 11.35, for the Italian group; and from 8.1 to 15.5 years, mean 10.30, for the Jewish group. Results from the Goodenough Drawing Test (10 subjects in each group) showed MA range from 6.0 to 12.0 years, mean MA 9.40, for the Italian group; and from 7.0 to 10.8 years, mean 8.67, for the Jewish group. (Although these girls were of subnormal intelligence by these mental tests, no reference is made to the likelihood that they might be feeble-minded, but this likelihood is increased by the results of the Social Maturity Scale.)

The data for paternal occupation showed mean POC (Minnesota Scale) 5.23 for the Italian group, and 4.08 for the Jewish group. The predominant language at home was Italian for 54 per cent of the Italian group, and Jewish for 15 per cent of the Jewish group, the remainder in both groups being English. The neighborhood environment was classed as slum and pre-slum for 85 per cent of the Italian group as compared with 62 per cent of the Jewish group. In general the mental subnormality of the girls was recognized in their families and corresponded to the level of aspiration of both parents and subjects.

Results from the Social Scale yielded SA's from 10.0 to 12.5 years, mean SA 11.06 (mean SQ 70), for the Italian group; and from 10.5 to 12.8 years, mean SA 11.45 (mean SQ 72), for the Jewish group. This slight superiority of the Jewish group is in the direction of the superior social-economic status of the Jewish families in spite of the mean equality of the S's in Otis MA and the slight mean inferiority in Pintner and Goodenough tests for the Jewish group. Item analysis was not made except as some slight superiority was noted in favor of the Jewish group on two of the upper communication items. Rank difference correlations were substantially zero (presumably influenced by the small N and the limited range of individual variation for most of the data). There was a slight negative correlation for both groups with the Pintner Non-Language Test, and a smaller negative correlation with the Goodenough Drawing Test (apparently due to the wider range of distribution on these tests).

The data of this investigation are too meager for positive inferences, but do suggest a certain consistency of relationships. The two groups being of equal LA (15 years) were equally subnormal in Otis MA (8 years). They were also seriously subnormal in non-verbal MA but with the Jewish group relatively more subnormal (Pintner MA's 11.3 and 10.3, Goodenough MA's 9.4 and 8.7 respectively). Both groups were of inferior SA (11 years) with the Jewish group slightly less so (.4 years). The SA's were 3 years superior to the Otis MA's and about equal to the Pintner MA's. The Jewish group was one class superior in POC. There was a slight negative correlation between SA and non-verbal MA, the other correlations being substantially zero. The Jewish superiority in SA may be attributed either to their POC superiority or to their non-verbal inferiority which was negatively correlated with SA.

In general the results not only showed internal consistency but confirm other evidence as revealing the dependence of SA on MA rather than directly on cultural status (except as MA may reflect cultural status). This conclusion is confirmed by the low correlation between SA and POC when controlled for the influence of Otis MA and Pintner MA, the correlations being $r = .16$ and $r = .07$ for the Italian and Jewish groups respectively.

b. (Negro subjects.) Eugene E. Doll (1937) examined 34 Negroes of both sexes in the vicinity of Vineland, New Jersey. The Negro population in this community was rather small and though centered to some degree in one quarter of the city was less concentrated than is common to most communities. Numerous white families, especially Jewish, were living in the heart of the Negro section. The subjects were obtained by referral from one family to another. The sample included several relatively prosperous families but was made up chiefly of the relatively poor. It was difficult to estimate the representativeness of Negroes in this community as compared with other towns or areas of the country. However, it was apparent that there had been considerable influx of southern Negroes to the group. Twenty-six of the 34 S's came from families with four or more children.

The external appearance of these homes was unfavorable, the interiors somewhat more favorable. A low standard of cleanliness was apparent. The homes showed lack of reading matter and revealed general shabbiness. The mothers were used as informants for 21 S's, the fathers for 5, and various relatives for the others with 2 S's acting as their own informants. Examining conditions were favorable and the informants cooperative.

The age range for all but one of the subjects (one S at LA 52, SQ 106, was omitted from the following report because of relatively advanced age) was from below one year up to 23 years of age, with one or two subjects at most of the intervening years and not more than two S's at any particular year. The median life age was 10 years, interquartile range 4-15 years. The distribution by paternal occupational class showed 19 S's at POC IV, 9 at POC V, 2 at POC VI, and 3 not stated. The typical paternal schooling was upper grammar grade, with 2 fathers at high school education, 2 illiterate, and all others between 4th and 8th grades. Maternal schooling was relatively higher, with 8 mothers having high school education, 2 of whom had had post-high-school education. The Ss' own schooling ranged from lack of schooling at the earliest ages through preschool and primary up to high school. Four of the S's were high school graduates and 4 others high school juniors. Sixteen S's were female and 17 male.

Educational retardation among these S's in terms of attained school grade seemed not unusual. Of 22 S's below LA 15 years, 3 were two grades retarded, 4 were one grade retarded, 2 were one grade advanced, 1 was two grades advanced, and the others were at grade or not yet attending school because of early age.

The SQ range was from 79 to 140, median 102, mean also 102, interquartile range 90-107. There was a slight negative correlation between LA and SQ ($R = -.18$). Dividing the S's into thirds, the mean SQ's were: 105 for LA zero to 6 inclusive, 103 for LA 7 to 15, and 97 for LA 16 to 23.

Item comparison was accomplished by the following procedure.

TABLE B

FRAGMENTARY EXAMPLE OF DIFFERENTIAL ITEM COMPARISONS

(Column numbers of table refer to paragraph numbers of accompanying text)

1 Normative Item Number (e.g.)	2 Normative Item Age Norm	3 Normative Item Norm SD	4 Differential Sample (e.g. N = 12) Total +'s	5 + 6 Diff. Item Rank Number	7 Diff. Item Age (from 1, 2)	8 Diff. D (2-7)	9 Diff. D/SD (8/3)
71	8.5	1.78	12				
72	8.5	1.93	12				
73	8.6	1.45	12	73	–	–	–
74	8.9	1.69	10	76	9.4	–.5	–.30
75	9.0	1.61	8	79	10.3	–1.3	–.81
76	9.4	1.34	7	80	10.9	–1.5	–1.12
77	9.4	1.55	12	74 (73)	–	–	–
78	9.6	1.57	9	78	9.6	0	–
79	10.3	2.09	7	81 (80)	10.9	–.6	–.29
80	10.9	2.39	11	75	9.0	1.9	.80
81	11.2	3.21	10	77 (76)	9.4	1.8	.56

SCHEMA FOR DIFFERENTIAL ITEM COMPARISONS

1. Consider the item-numbers on the standard record blank as the normative order of progressive (maturational) item difficulty (cf. example Table B, column 1).
2. Opposite each item-number enter (from Table 2, p. 366) the corresponding normative mean age norm (example, col. 2). (Use norm for sexes combined unless sex comparisons are desired.)
3. Ditto for each item norm SD (col. 3). (Items without SD's can be used for central tendency differences but not for SD deviations.)
4. Summate the total number of passes for each item for all S's combined in the differential sample and enter opposite corresponding item-numbers (col. 4, assuming differential sample where $N = 12$).
5. Rank the items (i.e., assign consecutive item-numbers) in order of decreasing total number of passes per item for the differential sample; begin with that normative item-number (retaining the number as the first equivalent rank-number) which represents the last of the continuous items passed by all of the differential S's: use continuous rather than equalized numbers for tied ranks, following the normative item progressions (col. 5 + 6).
6. Ignore as of indeterminate difficulty the ranks of those items passed by all of the differential S's or by none of the differential S's (col. 5 + 6).
7. Enter opposite each of the remaining items (those passed by less than all S's but by more than none) the normative item age-value corresponding to the differential rank item number (from cols. 1 and 2); for each of the consecutively numbered tied ranks enter the age-value of its first occurrence in the normative order of difficulty (col. 7).
8. Calculate the differences between the normative and differential equivalent age-values (col. 8,= col. 2 minus col. 7).
9. Divide these differences for each item by the corresponding normative SD's (col. 9, = col. 8 divided by col. 3). Consider these quotients as normative SD-score deviations.
10. Interpret these SD multiples conventionally, e.g., less than 1 SD as not significant and more than 2 SD as significant, with due regard for sampling and other allowances.

While statistically unconventional, this method affords some definitive evidence on comparative item difficulty where the population sample does not permit the use of standard techniques. The significance of such comparisons will of course depend upon sample size in relation to diversity, and the interpretations will be relatively tenuous accordingly. Comparisons are not practicable for items which are passed or failed by all S's in the comparative sample.

The results from such analysis showed only two items with comparative (Negro) differences appreciably larger than their normative (white) SD's. These were Item 34, Talks in short sentences (white mean 2.0, SD .52, equivalent Negro mean .9, D = 2.1 SD), and Item 63, Uses pencil for writing (white mean 6.2, SD .80, equivalent Negro mean 8.3, D = — 2.6 SD). Eight items showed deviations from 1.05 SD to 1.16 SD (Items 25, 33, 38, 40, 48, 71, 83, and 101), and two items showed deviations of — 1.01 SD (Item 66) and — 1.08 SD (Item 78). All other items were less than ± 1 SD or indeterminately deviant. These results should not be taken too literally. Yet they suggest that the items of the Scale were fairly applicable to these Negro S's without differential allowances.

Like the previous studies, this one is cited to illustrate the feasibility of the method in relation to environmental circumstances. As in the other culturally affected studies, it is uncertain how much the environment affects the social scores versus how successfully the scores portray the relation of environment to social maturation. In this study it appears that in spite of minor item-score differences the social scores of S's from a relatively low socio-economic environment were nevertheless within the average-normal range of deviation (total SQ range 79 - 140). (For comparison of these results with those from other studies in which Negro S's were included see index.)

Several hypotheses are apparent in the literature on the mental maturation of Negroes in mixed white environments of variable socio-economic status, e.g.: (1) there are no appreciable racial differences except as these reflect the influence of environmental limitation or environmental selection, (2) Negroes show a constant retardation in development as compared with whites, (3) Negroes show relatively early maturation and relatively lower ceiling as compared with whites of similar selection. We need not deal here with the evaluation of these and other hypotheses, although our data mildly favor the last mentioned, with due regard for sampling variables.

c. (Pueblo Indians.) The Scale was employed by S. Geraldine Longwell (1935a), while associated with the Laboratory of Anthropology at Santa Fe, N. M., in a trial study of 10 Pueblo Indian children at San Juan Pueblo, New Mexico. The S's were 5 boys and 5 girls at LA's 8.8 to 11.8 years, mean LA 10.4 years. By school grade 4 S's were in second grade, 2 in third, and 4 in fourth, at the local government Indian day school. Experimental Form A was used with a teacher at the government school as informant. The results were transmuted in terms of Experimental Form B. The obtained SA's (standard procedure) ranged from 8.2 to 11.6 years, mean SA 10.2 years. The SQ range was from 87 to 111, mean SQ 98.

This study was designed to explore the practicability of the Scale with individual children in a bi-cultural environment. These S's were living at home and attending a government day school. Their mean school retardation was approximately one year as compared with white standards. Selectivity of the sample is not clearly apparent except as the S's were living in a native pueblo on a government reservation.

The environmental scene (as of 1935) may be described briefly as follows. San Juan Pueblo is one of a number of communities on the Pueblo Indian Reservation north of Santa Fe. The original pueblo (Chamita) was infiltrated by a Spanish settlement and now comprises a rural town of about 1150 population, 25 miles north of Santa Fe. The Indian section is scattered over a small area extending about one-half mile from the general store and post-office. Communicating highways lead north along the Rio Grande toward tourist-mecca Taos.

The relation of the Indian to the "American" members of the community constitutes a bi-cultural situation. Many of the Indians are affiliated with the original Spanish Mission and bear both Indian and Spanish names. The children of grammar school age attend the local government Indian day school but live at home, where Tewa dialect is still the family tongue. The older children attend high school at Santa Fe.

Native customs still obtain at home where the family sit on the floor at meal-time and eat tortillas, frijoles, and enchaladas with their fingers from common vessels. Benches serve as seats in the daytime and as beds (with blanket roll) at night. The common dress is dungarees and blouse, supplemented by blanket robes or jackets, with shoes and stockings for "dress" occasions, on trips to town, or during inclement weather. The children attending day school enjoy supervised shower bathing. Other bathing is accomplished in the Rio Grande or nearby irrigational ditches. The hair is carefully dressed. Native costume is preferred for special occasions, such as native festivals. Native customs persist, with marked tribal pride and personal independence. "Store" clothing is government issue but may be supplemented by local purchase or barter. Blankets, pottery, weaving, garden produce, and stock (ponies, sheep, poultry) serve for barter or sale. Piñon nuts are gathered at nearby wooded sections. The children assist in family enterprises for producing and trading such wares, exercising appreciable responsibility and covering appreciable distances in so doing. Although the families are withdrawn in tribal relations the total setting affords ample opportunity for inter-social communication even though not vigorously capitalized. Moreover, the demoralizing effect of government patronage tends to reduce spontaneous initiative.

These circumstances are reflected in the item performances of the Social Scale, the above sketchy observations being noted with special reference to the age sample here studied. Contact with the extra-tribal culture serves to extend the opportunities and diversify the customs inherent in the native environment, affording the benefits and offsetting the limitations of both. School attendance further amplifies these opportunities, though there may be limited occasion for the social capitalization of literacy in the extra-mural scene.

The Scale was used at a time (1935) when its technique was in process of development, and without specific intent to reveal its anthropological possibilities. Moreover, the sample was small and restricted in age range. Hence the results merely suggest the practicabilities for either standard or modified procedures. Actually, under the circumstances, no serious modification was necessary, although hints are apparent for cultural adaptation.

Item comparisons, employing the same procedure as with Negro S's (p. 500), yielded the following tentative returns. (Some of the returns appear to be vitiated by doubtful rigor of examination.)

Item 66, Tells time to quarter hour, (passed by 2 S's) was relatively difficult (normative white mean 7.3, SD 1.29, Indian mean 11.6, D = — 3.3 SD). This may have been due to lack of time-pieces, low motivation, or imperfect examining. All S's were reported as telling time by sun-shadow, but clocks and time instruction were presumably a part of school-room equipment and teaching. The S's were reported as usually "on time" as desired. The S's who passed this item were 2 out of 4 S's at LA 11 years.

Item 93, Goes out unsupervised daytime, (passed by 6 S's) was relatively easy (white mean 16.1, SD 1.96, Indian mean 10.9, D = 2.7 SD). Here (assuming adequate item scoring) the culture appears to have afforded less restrictions or more stimulation as well as perhaps more inculcation of self-reliance and its exercise.

Between these extremes were the following comparisons: Item 89, Performs responsible routine chores, 8 S's, D = 2.4 SD; Item 92, Goes to nearby places alone, 1 S, D = 2.1 SD; Item 86, Exercises complete care of dress, 8 S's, D = 1.7 SD; Item 73, Reads on own initiative, 6 S's D = — 1.6 SD. All other determinate differences were less than ± 1 SD.

Unfortunately, several apparently real cultural differences could not be evaluated by this procedure because the items involved were either passed by all S's or failed by all and were thus of indeterminate comparative difficulty within the age range of the S's examined. Among these the following are noteworthy as presumably affected by the cultural situation. Item 62, Uses table knife for spreading, was assumed + NO for all S's; Item 67, Uses table knife for cutting, was scored + NO for all S's; Item 75, Cares for self at table, was scored plus for all S's but noted simple situation at home; Item 78, Writes occasional short letters, was scored minus for all S's but noted little or no occasion for doing so; Item 79, Makes telephone calls, and Item 81, Answers ads; purchases by mail, were similar to Item 78. Other items were generally below or above the maturational range of these S's, or there was little or no occasion for their performance.

In general this analysis is not seriously warranted in view of the limited N and diversity of the S's, and the relatively meager auxiliary information. It is offered here only to suggest the possibilities of employing the Scale for evaluation of cultural influences. Its obvious extension would lead to the development of substitutive or alternative items appropriate to the cultural idiosyncracies, thus yielding a systematic evaluation of comparative maturation under comparative social dynamics.

Nevertheless, the Scale did in this unmodified tryout reveal apparently real individual differences as well as an apparently sound group norm. Thus one girl in the second grade, LA 9.3, obtained SA 8.2, SQ 87, whereas another in the same grade, LA 8.8, obtained SA 9.8, SQ 111. Similar differences among the other S's seemed in accord with over-all appraisal of these S's. And, as noted at the beginning of this report, the group SQ range was definitive from SQ 87 to 111, mean SQ 98, a result also in general accord with independent estimates of these S's from other observations.

5. *Conduct disorders.*

a. (Behavior, intelligence, and socio-economic status.) Wile and Davis (1939) used the Scale in a study of the behavior differentials of 100 children (36 girls, 64 boys) with Binet IQ's (1916 Stanford ?) from 120 to 148 compared with a similar group with IQ's from 50 to 79, in relation to educational and social background. In the superior group infantilism, regressive emotional behavior, and hypochondriacal tendencies predominated, while in the inferior group the behavior problems reflected disturbances at home, maladjustment at school and inter-sibling conflicts.

For the superior IQ group the LA range was from 2.8 to 13.6 years, median 8.7. For the inferior group the LA range was 4.1 to 15.5 years, median 10.3. The range of school grade attainment was substantially the same for both groups (in spite of LA and MA differences), but with relatively more of the inferior group in the lower grades and relatively fewer in the higher grades. Median school grade for the superior group was 4A and for the inferior group 3A. Compared with Binet MA, these results showed a general tendency for the superior children to be educationally retarded in respect to related intelligence, and for the inferior group to be educationally advanced (a common finding).

The MA range for the superior group was from 3.3 to 18.0 years, median 10.8. For the inferior group the range was from MA 2.9 to 10.8 years, median 7.3. The basal year in MA was from 3 to 16 years, average 9, for the superior group; and from 2 to 10 years, average 6, for the inferior group. The range in SA for the superior group was from 3.0 to 17.0 years, median 9.0; and for the inferior group was from 2.6 to 11.4 years, median 7.9.

These results revealed ("on the average") SA at .1 years *above* LA and 2.3 years *below* MA for the superior group; for the inferior group SA was 2.7 years *below* LA and .2 years *above* MA. (This relative *inferiority* of SA to MA for superior IQ's and relative *superiority* of SA to MA in inferior IQ groups is in accord with numerous other studies not related to behavior problems. The precise comparisons should, of course, reckon with the respective SD's at the ages concerned.)

The range of LA - SA difference was from −4.0 years to 2.4 years (average −.1) for the superior IQ group, and from .3 years to 5.3 years (average 2.7) for the inferior group. The range of MA - SA difference for the superior IQ group was from 6.3 years to −.7 years (average 2.3), and for the inferior group from .1 to −2.0 years (average −.2).

The coefficient of correlation (*r*?) for LA - SA was .96 for both groups (median SA .1 year above median LA for the superior group, and 2.5 years below for the inferior group). The MA - SA correlation coefficient was .88 for the superior group and .91 for the inferior group (median MA superiority 1.8 years and −.6 years respectively). The correlation coefficients for Binet basal year and SA were .80 for the superior group, and .92 for the inferior group (median basal year - SA difference zero for the superior group and median basal year 1.9 years below median SA for the inferior group).

Evaluation of the subjects in terms of the socio-economic status of their families and family constellations (number and position of children) was considered in relation to IQ but not to SQ. These results indicated 75 per cent of the superior IQ group belonging to families with one or two children as compared with 46 per cent for the inferior group. The results also indicated definitely superior socio-economic status on the part of the superior group. Twenty-seven per cent of the parents of the superior group were born in the United States as compared with 38 per cent of the parents in the inferior group; 35 per cent of the parents in the superior group had no schooling as compared with 61 per cent for the inferior group; 11 per cent of the parents in the superior group had high school education as compared with .5 per cent in the inferior group; in the superior group only English was spoken in 46 per cent of the homes as compared with 59 per cent in the inferior group. Evidence more difficult to summarize (less clear cut differences) included sources of income, Sims Score Card data, character of neighborhood, familial integrity, and so on.

Representative behavior problems were summarized in relation to physical and emotional factors as accompanying the intellectual, educational and social data.

The authors concluded that: (1) both superior and inferior children are "exceptional"; (2) both should be studied in respect to physical, intellectual, emotional *and social* deviations (italics ours); (3) the problems and difficulties of the superior group were not less numerous than those of the inferior group; (4) the superior group showed a more ready social adjustability; (5) there was greater personality threat to the superior group; (6) problems in both groups arise from factors which reflect biological as well as social origins; (7) both groups need diversified guidance.

As in the previous studies it is difficult to evaluate the cause and effect relationships involved, that is, the extent to which social variables influenced the social scores as true measures and the extent to which the scores when assumed as true measures reflect environmental differences. In this connection it should again be recalled that the method provides for the spurious influence of environmental limitations through the device of NO scores, that is, "those items which the subject has not performed and does not now perform because of special restraint or lack of environmental opportunity... but which the subject would presumably perform habitually or could quickly learn to perform if such restrictions to behavior were removed." These NO scores (no opportunity, or no occasion, to perform as required) call attention to environmental limitations and at the same time provide for hypothetically successful performance on the basis of the subject's presumptive *capacity* to perform as contrasted with his immediate non-performance. These environmental effects are consolidated in the total scores as the compensating influences from particular items which are favored or limited by the environmental situations. The influence of the environment on particular items is ascertainable through item analysis, including NO item scoring.

b. (Behavior and organic involvement.) Lurie and associates (1941, 1942) investigated the relation of behavior problems in children and youths to intellectual and social maturation. They examined the records of the 140 most recent patients studied at the Child Guidance Home of the Jewish Hospital in Cincinnati "to determine whether the differences between intelligence quotients and social quotients showed any correlation with (1) the nature of the problems presented by the children, (2) their behavior while at the Home, and (3) the results of treatment." In the first report (Lurie, 1941) they dealt with the first of these aims, "namely, possible relationship of discrepancy between the intelligence quotient and social quotient to the nature of the behavior disorder as determined by the final diagnosis."

The subjects were referred by physicians, teachers, social service agencies and the juvenile court. Approximately 60 per cent (85 S's) were boys and 40 per cent (55 S's) girls between life ages 3 and 22 years, mean LA 11.8. The reason for referral ranged from incorrigibility to murder, the majority being referred because of maladjustment at home or at school. The S's covered the gamut of economic and social status from "the social elite to the submerged tenth."

Intelligence was measured by the Binet scale (1916 Stanford), and social maturity by the Vineland scale. The obtained IQ's ranged from 37 - 136, mean IQ 92.5. The social quotients ranged from 47 - 126, mean SQ 86.3. With the subjects grouped in 10-point intervals (our calculation) 39 per cent of the children showed IQ - SQ difference of not more than ± 9 points, 25 per cent showed SQ's from 10 to 29 points *lower* than IQ's, 31 per cent had SQ's from 10 to 29 points *higher* than IQ's and 4 per cent had SQ's from 30 to 39 points *below* IQ's. In addition one S had SQ 67 points below IQ and another had SQ 37 points above IQ.

Etiologically, 43 per cent of the S's presented problems essentially of endogenous (constitutional) origin, 22 per cent of exogenous (environmental) origin, and 36 per cent of heterogenous (mixed) origin. The endogenous S's included: 23 patients whose behavior problems were diagnosed as due to psychoneuroses, 15 to organic diseases of the central nervous system, 8 to endocrine disturbances, 5 to psychoses, 3 to psychopathic personality, 3 to intellectual deviation, and 2 to somatic disorders.

For all S's (140) combined the IQ - SQ differences showed SQ appreciably *superior* to IQ where the mean IQ was below 80, SQ *inferior* (*and by larger amounts*) to IQ where the mean IQ was above 100, with gradual approximation toward equivalence between these limits. These IQ - SQ differences were substantially similar for exogenous, endogenous and heterogenous S's except that in the heterogenous group the IQ - SQ difference was slightly lower in the lower SQ range and noticeably higher at the upper limit of the IQ range.

The IQ - SQ differences were then compared with the diagnostic differentials within the exogenous group. Here again the results were substantially undifferentiated except that the group with psychoneuroses resembled the heterogenous group (but by slightly smaller amounts).

From this portion of the study the authors concluded that the Binet scale and the Social Maturity Scale do not measure the same factors and that there is some regression toward the mean for IQ - SQ differences, the lower IQ's tending to overcapitalize and the higher IQ's to undercapitalize intelligence as related to social competence.

In the second portion of their investigation (Lurie, 1942) the authors were primarily concerned with the relation of problem behavior to intelligence and social maturity from the standpoint of whether the behavior seemed to be more closely related to the former or the latter. For this purpose the behavior of the same 140 S's at the Child Guidance Home was observed over a period of thirty days for each child in a behaviorally unrestricted environment. The results of these observations were then classified as to whether the behavior was in keeping with IQ, or SQ, or both, or neither.

It was found that: (1) in 13 per cent of the S's the behavior was in accord with MA, (2) in 19 per cent with SA, (3) in 31 per cent with both MA and SA, and (4) in 36 per cent with neither.

These four groups were then studied with reference to IQ - SQ differences. In group 1 the proportion of boys to girls was 8 to 10, whereas in the total sample the proportion was 6 to 4; in group 2 the proportion of boys to girls was 22 to 5; in group 3 the proportion was 27 to 17; in group 4 the proportion was 32 to 19. These four groups were carefully analyzed with reference to the relation of IQ to SQ and also with reference to organic involvement and type of behavior. In groups 1 and 2 the major reason for referral was anti-social behavior, in group 3 the major reason was maladjustment at school, in group 4 both these reasons were present in about equal numbers and constituted the great majority of referral reasons.

Without detailing the specific results it may be stated that the authors concluded that neither MA nor SA, nor IQ - SQ difference, afforded a suitable basis for predicting the outcome of behavior problems, but that the integrity of the central nervous system was apparently more important.

This study as a whole is significant in revealing: (1) the relation of social to intellectual maturity at different degrees of intellectual maturation; (2) the relation of behavior problems to MA, SA, and sex; (3) the relation of behavior to organic involvement; and (4) the relation of organic involvement to the social capitalization of intelligence. It is to be noted again in all such studies that the IQ - SQ relationship is dependent upon age in relation to IQ, with a marked tendency for SQ to fall below IQ after 15 years of age in subjects whose low IQ's are associated with feeble-mindedness, but a tendency for SQ to rise above IQ in borderline dull-normal subjects or those showing delayed development not amounting to feeble-mindedness.

c. (Child guidance problems.) Bodman (1946) conducted a pioneer exploratory study of the Scale in England with reference to its "great potentialities, as one of the tools of social medicine." His S's consisted of 70 consecutive cases from the Bristol Child Guidance Clinic files plus 30 cases from his private case-file and the Somerset County files for the same period. The S's were both urban and rural and represented "all economic levels of society." All S's had been referred as child guidance problems.

The central problem was to observe to what extent intelligence and social adaptation "go together," and how the relationship may be related to other variables (e.g., environmental circumstances, behavior disorders, home situation, social pressures, degree of education, effects of treatment).

IQ - SQ differences were found as follows: ± 5 points, 28 S's; SQ 5-9 points higher, 7 S's; SQ 10 + points higher, 18 S's; SQ 5-9 points lower, 6 S's; SQ 10 + points lower, 41 S's. A general tendency was noted for low IQ's to be overcapitalized (relatively higher SQ) and for high IQ's to be undercapitalized (relatively lower SQ) — a common finding comparable to the typical IQ - EQ relationship.

Other variables showed: favorable SQ's in spite of unfavorable environments, unfavorable behavior consequences of excessive social pressures, positive social influence of sibs and schoolmates. The data suggested less variability for SQ than for IQ, with regression toward the mean, presumably reflecting environmental pressures (high for low IQ and low for high IQ).

The author concluded by suggesting a number of pertinent problems for further research, anticipating more extensive use of the Scale. Appreciable progress has already been made toward an English-culture standardization.

d. (Maladjusted youths.) The Scale was used by Kathryn F. Deacon (1944) in a population survey of a church-sponsored farm school for maladjusted boys from marginal homes in northern New Jersey. Eighty boys in four residential cottages were examined using their housemothers as informants. Intelligence was measured by Morgan's Mental Test (literate group test) and by the Myers Mental Measure (non-literate group test). The survey was completed within a time period of two weeks.

Most of the boys came from urban underprivileged or broken homes in which they were not personally well adjusted. The LA range was from 8.3 to 18.8 years, median LA 13.7. Length of residence was from three weeks to 7.0 years, median residence 1.8 years. Attained school grade was from special class to 4th year high school, median school grade 7.2. Morgan MA range was from failure to 19 + years, median Morgan MA 13.1. Myers MA range was from failure to 14 + years, median Myers MA 14 +. The SA range was from 5.9 to 19.7 years, median SA 12.9. The SQ range was from 61 to 122, median SQ 93. These results show median LA 13.7, Morgan MA 13.1, Myers MA 14 +, Vineland SA 12.9.

The social background of these children was not systematically evaluated but in general suggested relatively low socio-economic status, poor adjustment at home and usually poor also at school, with generally marginal social behavior and precarious adjustment. It was not practicable in this survey to discriminate between the influence on social competence of home background vs. length of residence at the farm school. There was an implication that life at the School tended to promote expression of social maturity due to the totally favorable program of training, regimen and improved personal adjustment. The results from the survey were employed to suggest directions in which the program of training and regimen might still further facilitate improved expression of social maturation.

Item analysis (Thompson method) showed differences inferior to the normative standardization by more than 2 SD in four items (Item 40, Dries hands, = — 6.2 SD; Item 50, Washes hands, = — 4.2 SD; Item 52, Washes face, = — 2.7 SD; Item 59, Plays table games, = — 2.8 SD) in spite of continuous environmental stimulation. Two additional items showed inferiority by amounts between 1 SD and 2 SD (Item 53, Goes about neighborhood, = — 1.2 SD; and Item 56, Plays competitive games, = — 1.5 SD), the former perhaps because of environmental restrictions and the latter in spite of free encouragement. Five items showed superiority by amounts larger than 1 SD (Item 63, Uses pencil, = 1.9 SD; Item 66, Tells time, = 1.7 SD; Item 67, Uses table knife for cutting, = 1.7 SD; Item 68, Disavows Santa Claus, = 1.8 SD; Item 75, Cares for self at table, = 2.4 SD). These item differences were revealing as indicating certain limitations in spite of environmental encouragement and certain advantages not apparently due to special stimulation.

The data were analyzed for such inter-related variables as LA, literate MA, non-literate MA, estimated SA, SQ, length of farm-school residence, school grade, cottage groups, and so on. These results (omitted here) were in general accord with the similar evidence reported by Doll and Fitch (p. 513).

The use of the Scale in this situation is illuminating as another study of the influence of social variables on mentally normal subjects, and also as an illustration of the practicability of the Scale for purposes of population surveys in particular social settings. The results are illuminating further as suggesting the relative immunity to and independence of specific stimulation or instruction.

6. *Juvenile delinquents.*

a. M. I. Dunsdon (1947) used the Scale in making "a report on the personalities of all children and young persons who were brought before the Juvenile Court and remanded on bail or in custody," in England. This included the latter half of 313 children referred in 1944-1945 to a L. E. A. Child Guidance Clinic. "It was found that where the social maturity ratio (social quotient) was poor, a 'lower than expectation' level of achievement at school and at work occurred almost without exception." The median IQ (test system not stated and actual N not stated) was 81, with corresponding median SQ of 80 (59 per cent of S's were below IQ 85 and 67 per cent below SQ 85). The IQ-SQ data indicated a definite tendency toward undercapitalization of IQ's above 85 and overcapitalization of IQ's below 70. (This is in accord with other evidence but may be an artifact of the differential SD's of IQ's and SQ's.) There was also some tendency for the incidence of both high SQ and low SQ to decrease with age, with corresponding increases in the SQ interval of 70-84.

The author concluded that these results "stress the importance of taking into consideration other factors, in addition to those concerned with intelligence alone, when dealing with the problem of delinquency."

b. Doll and Fitch (1939) examined 91 white and Negro juvenile delinquent boys at the State Home for Boys at Jamesburg, New Jersey, "to test the practicability of the method with delinquents in an institutional environment, where disciplinary control might be expected to influence the expression of social competence. It was anticipated that the untrustworthiness so frequently encountered among delinquents might be reflected as a special handicap to the expression of social competence analogous in its effects to those of blindness or deafness or crippling."

The practicability of the method was determined in preliminary applications of the Scale with cottage parents (attendants). In this sample it was found that the cottage mothers were better informants than the cottage fathers, and that it was readily possible to determine the satisfactoriness of the informant early in the course of the examination.

The S's were selected as representative of the total population of the institution in respect to age, color, and mental diagnosis. Fifty-eight were white and 33 Negro. The life age range was from 10 to 17 years, mid-range 12 to 15 years, median LA 14.0 years.

In addition to applying the Social Scale, Morgan's Mental Test was administered for group measurement of literate intelligence, and the Myers Mental Measure for non-literate intelligence, with 72 of the 91 S's. No appreciable differences were discovered with regard to the relation of SA to race, or SA to literate MA or to non-literate MA. Consequently the data were pooled as to race and as to literate and non-literate MA.

The range of pooled MA's (72 S's) was from 4 to 15 years, mid-range 7 to 12 years, median pooled MA 9.6 years. The raw correlation for pooled MA with LA was $r = .44$.

The range of SA for all S's (91) was from 6 to 16 years, mid-range 8 to 11 years, median SA 10.0 years. Median difference in SA by race was .2 years higher for the Negro S's (in spite of their median MA being one year below that for white S's). The raw correlation between SA and LA was $r = .41$ which was reduced to $r = .25$ when controlled for the influence of MA.

The difference between median SA and median pooled MA was .4 years in favor of SA. The raw correlation between SA and pooled MA was $r = .50$. This was reduced to $r = .40$ when controlled for the influence of LA.

Following each examination, and before totalling its result, each informant was asked to estimate the SA of that S in terms of normal child development. The range of these estimated SA's was from SA 5 to SA 17 years, median estimated SA 11.8 years. The raw correlation between estimated SA and measured SA was $r = .80$. The median estimated SA was 1.8 years higher than the median measured SA. The estimates were 1.0 years higher for the Negro S's than for the white.

The range of SQ's was from 40 to 110, mid-range 60 to 90, median SQ 72.5. There was no difference in SQ according to race. The correlation between LA and SQ was $r = -.21$.

Mental ratios were obtained by dividing pooled MA by LA. The median of this mental ratio was three points below the median SQ. The correlation between LA and mental ratio was $r = .05$.

The effect of untrustworthiness vs. the influence of intellectual retardation and other considerations was not specifically determined, nor was the influence of other variables isolated. Item analysis (Thompson method) revealed few discrepancies between these Negro vs. white delinquent S's or between these delinquent vs. normative non-delinquent S's. The results showed more items displaced (and by larger amounts) for white vs. Negro delinquents. Four of the five items which showed retarded achievement for the white S's reflected untrustworthiness, while two of the three items in which the white delinquents were advanced were in the self-help category. In general the white delinquents departed more from the (white) non-delinquent norm than did the Negro delinquents.

Minor evidence was presented on test-retest reliability obtained from re-examination of seven S's with alternative informants, and for five S's serving as their own informants. The deviations in such scores were within a range of plus and minus one year.

A special study was made of the influence of environmental regimentation and restriction through the evaluation of plus NO scores at each SA level. It was found that relatively few subjects were significantly penalized by such environmental limitations.

Aside from its research implications this study is cited to confirm the practicability of the method with subjects whose expression of social competence is handicapped both by untrustworthiness and by environmental regimentation. The study indicates the feasibility of employing the method in the face of such obstacles.

c. A similar study was conducted by Springer (1941) with 130 adolescent male delinquents between the ages of 16 to 18 years awaiting sentence. These were non-institutionalized delinquents and therefore presumably more representative of delinquents in general. Eighty of the S's were white and 50 Negroes. Half of the S's in each group were first offenders, the other half recidivists. They were examined with the Social Scale with their parents as informants. Additional scores were obtained for the same S's with the Stanford-Binet Scale, the Durea Delinquency Index and the Detroit Scale of Behavior Factors.

It is impracticable and unnecessary here to review the detailed statistics of this careful study. The results are in general accord with those of Doll and Fitch in respect to the same influences and with due regard for the differences in the selectivity of the two samples. The principal results indicated:

(1.) Majority of S's within the normal and dull-normal ranges of mental and social competence.

(2.) Small but not statistically significant differences in social quotients in favor of Negro as compared with white S's.

(3.) Substantial and statistically significant SQ differences between first offenders and recidivists in favor of the first offenders.

(4.) Raw correlation of $r = .72$ between SQ and Binet IQ.

(5.) Raw correlation of $r = -.48$ between social maturity and Durea Delinquency Index.

(6.) Raw correlation of $r = .68$ between SQ and Detroit Behavior Factor scores.

The interested reader will refer to the comprehensive presentation of data for the precise results and the interrelation of variables. Discrepancies between these results and those of Doll and Fitch seem fairly attributable to sampling differences. No reservations were raised regarding the practicability or validity of the method.

d. Watts (1941) employed the Scale as one of a number of measurements for comparing delinquent and non-delinquent Negro boys. The S's were 92 boys from the Industrial Home School for Colored Children, Washington, D. C., and 91 boys without behavior problems selected from the same schools attended by the delinquents before commitment. The LA range was from 14.0 to 16.9 years for both groups. The mean LA was 15.2 years and 14.9 years, respectively. The IQ range (Otis Self-Administering Form A) was from 50 to 114, and from 50 to 105, respectively, mean IQ 77 for both groups. The range of school grade was from 4 to 10 grades for both groups, mean grades 6.5.

Social Scale data were obtained for 85 of the delinquent S's (and presumably an equal number of non-delinquents) by the author, employing the self-informing procedure. (Half of these were checked against an independent informant and found reliable, hence further checks were discontinued.) The range of examining for all S's was from items 78 to 96, inclusive. The LA for the 85 S's was the same as for the total delinquent group; the mean Otis IQ was 77.2, ± 14.2 (data for control group presumably similar).

The mean SQ for the delinquent S's was 95.95, ± 10.3, and for the non-delinquents was 98.47, ± 11.2, (extreme range not given; mean difference 2.52, CR 1.51). These results were compared with those from the other measurement systems employed, and also with the results of other investigations. Apparently, in the latter regard the discrepancies among the different studies are principally attributable to sampling differences rather than to difficulties experienced in the use of the Scale. The relatively high mean SQ in relation to IQ found by Watts might reflect scoring leniency or might reflect other factors.

e. Dora F. Capwell (1945) employed the Scale in a study of personality patterns of adolescent girls. The first portion of her study dealt with girls who showed improvement in IQ on re-examination, and the second part dealt with the differences between delinquents and non-delinquents. The study is too involved for analysis here. Moreover, raw data for the Social Maturity Scale were not presented. The Scale apparently received only minor emphasis because of its failure to show differences in those girls who had improved in IQ on re-examination as compared with those who had not, and because the differences revealed between delinquents and non-delinquents seemed more related to intelligence than to delinquency.

From the fact that the Social Scale did not reflect capitalization of the improvement in IQ we might infer:

(1.) that the IQ changes were not valid from the standpoint of their social significance,

(2.) that the Scale was insensitive to the amounts of change involved, or

(3.) that the lack of change was due to the habitual character of the social age performances vs. the variable changes in test performances.

However, it should be noted that the Social Scale was used only once whereas the mental scales were used twice. And from the fact that the Social Scale scores showed differences between delinquents and non-delinquents which were reduced to statistical insignificance when intelligence was held constant, we might infer that the Scale being more related to intelligence than to delinquency is more heavily affected by constitutional than by environmental factors. We might further infer that the Scale is comparable in applicability with delinquents to the intelligence scale, and that the difficulties encountered with delinquents did not seriously affect the Social Scale scores. At any rate the author mentioned no difficulties encountered in the use of the Scale in the setting where it was employed. Whereas some of the personality scales did reveal differences while the Social Scale did not, it might also be inferred that the Social Scale is at least broadly free from the influence of personality adjustment, being more dependent upon intelligence than on personality.

7. *Adult offenders.*

a. A study by Carr (1946) is particularly illuminating as illustrating the applicability of the Scale with young adult offenders in a restricted environment, and as revealing the relation of social age scores to a number of related variables.

Two hundred six consecutive admissions to the Indiana State Penal Farm, LA's 16 to 30 years, were examined by the self-informing procedure. The S's were also examined with the Henmon-Nelson (literate-verbal) intelligence test, the new Stanford arithmetic and reading tests, and the revised Beta examination, in the standard test-battery pattern of examining at the Farm. Four classification groups were considered, namely: (1) those inmates who scored above 57 points on the Henmon-Nelson and also "took" the arithmetic and reading tests, (2) those who scored below 57 points on the Henmon-Nelson and took the Beta and arithmetic tests, (3) those who could not read at all and took the Beta, and (4) those who could not be tested in any of these ways and were scored only on the Vineland scale. The distributions of S's in these four groups were respectively 137, 50, 15 and 4.

The correlation of SA with Henmon-Nelson score was $r = .66$, with Beta was $r = .63$, with arithmetic was $r = .56$, with reading was $r = .44$.

The results from the Social Scale ranged from SA 10.3 to SA 29.0 years, mode 19.0, median 18.5, mean 18.5. The results were not expressed in terms of social quotients but LA - SA tabulation showed no significant differences in the means for different age groups. This indicated a negative relationship between age and presumptive social quotient, that is, the younger subjects were relatively more competent than the older ones. Another interpretation however is possible, namely, in view of their general tendency toward subnormality it is possible that these subjects may have attained their ceiling competence prior to the normative adult ceiling (twenty-five years).

The results from the Social Scale in relation to intelligence test classification groups showed a general tendency toward marked reliability of the differences between the means between each group and each of the others in all but two of eleven comparisons. In the evaluation of other variables the following items were of special interest:

(1.) The differences between the mean SA's for "previous education" groupings (three classes by highest grade completed) were not appreciably significant except for one comparison (between upper grammar grades and high school).

(2.) For four "previous occupation" groupings there was a more positive but not very marked relationship.

(3.) For six classifications by "previous income brackets" the differences between the means were progressively significant from one bracket to the next.

(4.) For "life age" in six classifications by three-year intervals the mean scores were substantially identical with no significant differences from one group to another.

(5.) For "age at first arrest" no appreciable differences between the means were found for five classification groups. Likewise no significant differences were found in mean scores by sibling rank, or marital status, or current offenses, or number of previous arrests (although this showed consistently progressive reliability of differences for four classification groups), or number of times incarcerated.

In general the most significant differences between the means, in progressively decreasing order, were for intelligence classification groups, annual income groups, occupation groups, and education groups, all other groups showing little or no significant differences.

In general these results might be interpreted as indicating relative freedom in social competence from the influence of these variables except in the order and by the amounts indicated. The more precise evaluation is indicated in the original data of this carefully executed investigation.

b. The value of the Scale with adult offenders as either a directive or non-directive counseling device was explored by Doll and Brooks (1942). Fifty adult male prisoners at the Woodbourne (N.Y.) Institution for Defective Delinquents were examined as a cross-section of the inmate population by the self-informing procedure.

The subjects of this investigation reflected a wide range of variables such as race, religion, intelligence, schooling, and the like, which were not systematically evaluated in terms of the results from the Social Scale. The LA range was from 21 to 55 years, median LA 30 years. The MA range was from 6 to 19 years, median MA 10 years.* The IQ range (16-year ceiling) was from 39 to 126, median IQ 64 (14-year ceiling = IQ 71). The SA range was from 10 to 30 years, median SA 19 years. The SQ range was from 42 to 120, median SQ 80. These data revealed median SA 9 years in advance of MA, and median SQ 16 points (9 points on 14-year basis) in advance of IQ (but both MA and SA, as well as both IQ and SQ, were at the lower ends of their respective normative adult distributions).

In addition to these results the investigators observed that the Scale proved effective as a therapeutic procedure in the direction of release therapy. It assisted non-directive analysis and directive guidance by revealing personal strength and weakness in terms of standard developmental performances and mature social values. The administration of the Scale helped these offenders to gain insight into their past and present conduct as well as to formulate their future responsibilities. It likewise promoted a spirit of cooperation and tended to eliminate feelings of resistance to clinical examining, thus improving prisoner classification. The Scale also proved useful for instructing these offenders (directive counseling) regarding standards of conduct and their resources for attaining such standards. Most important of all it provided an approach to the prisoner as a whole with regard to the various facets of his total individuality. This study did not make clear the extent to which such therapeutic emphasis might have affected the validity of the method as a measuring scale, but the absence of such comment implies at least no awareness of such vitiation.

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* Due to typographical error this median MA was printed as 30 in the original publication.

V. PHYSICALLY HANDICAPPED SUBJECTS

1. *Auditory handicaps.*

a. An exploratory study with deaf and hard of hearing children was undertaken by Bradway (1937c) at the New Jersey School for the Deaf. In the major part of this study 92 pupils who had been deaf from birth or shortly thereafter were examined employing their cottage housemothers as informants. Eighty-one of these S's had been diagnosed as congenitally deaf and apparently never had had average normal acuity. Seven S's had lost their hearing due to disease in the first year of life, and four S's likewise between the ages of one and two years. No child had a hearing loss of less than 35 per cent in his better ear; four-fifths of the S's had a better ear loss of 70 per cent or more. These S's were drawn from a total population of 367 resident pupils who go home only for vacations and on occasional weekends. They were subject to both the advantages and disadvantages of institutional training and regimentation but were free from such environmental restrictions while on home visits.

The LA range for these 92 S's was from 5 to 21 years, mean LA 12.8. There were approximately three boys and three girls at each age, but in the absence of sex differences the sexes were combined for purposes of later analysis. Social-economic selection was represented by paternal occupational class (Minnesota scale) from 3 to 6, mean POC 4.8. All S's had been resident at the institution for at least six months. Homogeneous information on degree of intelligence was not available for purposes of analysis. In the absence of evidence to the contrary it was assumed that these S's were of potential average intelligence except as deafness itself may operate as a handicap to the development of intelligence, and except as the cause of the deafness might also cause mental retardation.

The range of obtained SA's was from 4 to 18 years, mean SA 10.3. Following each examination the informant was asked to estimate that S's social age. The range of these estimated SA's was from 5 to 23 years, mean estimated SA 11.8. The estimated SA's approximated the obtained SA's at 6 to 9 years but averaged about one to three years higher at other age levels. The mean estimated SA agreed more closely with LA than with obtained SA. The correlation between estimated and obtained SA was $r = .89$.

The obtained mean SQ was 80.7, SD = 11.3, extreme range 52 to 105. The mean SQ's by successive age levels varied from 70 to 89 without consistent relation to LA. In comparison with the normative standardization (SQ 100, SD 12, for corresponding range) this result showed a mean difference of — 19, or — 1.6 SD. Comparative paternal occupational class showed a slight difference in socio-economic status (4.8 vs. 4.2) in favor of the normative sample.

In general the author concluded that these subjects showed about 20 per cent reduction in social maturity scores as compared with the normative hearing children. However, there was marked individual variation in spite of the general tendency toward retardation. Two individual S's with SQ's above 100 were reported with reference to detailed item performances.

Since the purpose of the study was to determine the influence of deafness in comparison with hearing children, no attempt was made to employ double-scoring to allow for the influence of deafness on item performance. Item analysis (Thompson method) for these deaf subjects in comparison with the hearing subjects of the normative standardization indicated that the retardation in item performance was rather general and not confined to particular items or categories. These differences were reported in terms of normative SD values for items permitting such comparisons (Items 51 to 94). These deaf S's as compared with the normative hearing S's were advanced by 1 SD or less on 6 items. They were retarded by 0 to 1 SD on 12 items, by 1 to 2 SD on 11 items, by 2 to 3 SD on 10 items, and by 3 to 4 SD on 4 items (for detailed listing of particular items and their categorical relevance see original report). No item of the Scale within the range of the ability of these S's was failed by all subjects except Item 79 (Makes telephone calls). The influence of environmental stimulation and restraint on item performance was not specifically examined.

In a second portion of the study 11 pupils were examined who had lost their hearing subsequent to the age of 5 years, namely, one pupil at LA 5 years, four at 6, three at 7, two at 8, and one at 10. All of these 11 S's had hearing losses of 50 per cent or more in the better ear. All but one were boys. The LA range was from 12 to 18 years, mean LA 14.6 years. Paternal occupational class was from 4 to 5, mean POC 4.5. Very little difference was found between these S's and those who were deaf from birth or shortly thereafter. However, the mean SQ was about 4 points higher (.35 SD) for those with delayed loss of hearing and the individual variations were very much more marked.

The study as a whole did not consider such other variables as causes of deafness, degree of impairment, length of school residence, or the specific effects or limitations of environment and training at the school and at home.

The author concluded: (1) that the Scale may be applied successfully to deaf subjects without modification, (2) that its reliability in sorting deaf subjects according to estimated social competence was high, and (3) that it seemed a valuable instrument for the administrative classification of deaf pupils with respect to cottage placement, occupational assignment and readiness to return to extra-institutional environment. It was inferred that the Scale provides a useful means for further studies of deafness and its effects, as well as for the influence of social variables in respect to institutional vs. non-institutional measures for the care, protection and training of the deaf. The author suggested the practicability of retrospective use of the Scale with deaf subjects who in their later years had achieved outstanding success, and the desirability of studying the comparative effects on social competence of such other handicaps as blindness or crippling.

b. Streng and Kirk (1938) used the Scale in a study of 97 deaf and hard-of-hearing children at the Paul Binner Day-School for the Deaf in Milwaukee. The subjects were also examined with the Grace Arthur Performance Scale and (for 87 subjects) the Chicago Non-Verbal Examination. Degree of hearing loss was measured with the 2-A audiometer. The S's were living at home with their parents and attending school by bus or street car.

The S's included 50 boys and 47 girls. The LA range was from 6 to 18 years, with a majority of the S's under LA 13 years. The age of onset of deafness was prior to LA 2.5 years for 26 of the subjects. The mean hearing loss for the better ear for the deaf subjects was 71.7, and for the hard-of-hearing subjects was 46.2.

The S's were examined with their mothers or guardians as informants. The mean SQ for the 97 subjects was 96.2. The mean Grace-Arthur IQ was 100.9 ($D = 4.7$, $CR = 2.1$). The Chicago Non-Verbal IQ was 95.5 and the mean SQ for the corresponding 87 subjects was 95.3. From these results it was apparent that the mean SQ's of these subjects were not appreciably below the normative standardization and that the mean SQ's were fairly comparable to the mean IQ's, the differences being small in amount and statistically unreliable. There were some sex differences in these respects but they were not statistically reliable although consistent as to direction, the boys being higher on both IQ's and lower on SQ but by relatively small amounts.

Similarly no significant difference was found between the deaf and the hard-of-hearing in terms of hearing loss as measured by the 2-A audiometer. Also there were no significant differences in median SQ's as related to successive LA groups, or in mean SQ as related to age of onset of deafness.

The correlation between the two intelligence tests was $r = .65$, and for each IQ with corresponding SQ was $r = .29$. The lack of correlation between IQ's and SQ would seem to be significant, especially in view of the wide age range and in view of other studies showing higher relationship between IQ and SQ with hearing subjects. The low correlation is of further interest in the light of the comparability of the means for IQ and SQ.

The authors concluded that there was no significant retardation in intelligence or social competence for this group of subjects. In comparing their results with those of Bradway they inferred that the discrepancy might be due either to differences in intelligence between the two groups or to the differences in environment. To this we might add a third possibility that the results might be due to differences in examining procedure (a speculative assumption since the authors did not comment on this point). The authors further suggested that the residential school subjects might represent other unknown selective factors, commenting in this regard on the differences found by Doll and McKay between special class mentally retarded children as compared with institutionalized feeble-minded subjects.

Without passing judgment on these issues (see following study) the point of present interest is that the Scale afforded a means of evaluating these variables; apparently these authors found no barriers to the use of the Scale from the standpoint of practicability, reliability and validity.

c. Myklebust and Burchard (1945)* studied the effects of congenital vs. adventitious deafness on the social maturity of deaf children in relation to measures of intelligence and personality, and dealt with the variable of cause of deafness more specifically than was done by Bradway or by Streng and Kirk. One hundred eighty-nine pupils from the New Jersey School for the Deaf at LA's 7 to 19 years were examined with reference to a number of variables. One hundred S's were male and 89 were female, 68 with adventitious deafness (acquired after the child had learned to speak) and 121 with congenital deafness (existing from birth). One hundred twenty-nine had resided at the School for more than 4 years, whereas 60 had been in residence less than 4 years. Intelligence was measured by the Grace Arthur Performance Scale, personality by the Haggerty-Olson Wickman Behavior Rating Schedules, and social competence by the Vineland Social Maturity Scale. The results were compared as far as practicable with those obtained by Bradway and by Streng and Kirk.

As to intelligence, there was no appreciable or statistically significant mean difference between the IQ's for the congenital and adventitious groups (102.5 and 101.3, respectively; CR = .37; N = 121 and 68), and this was true also for mental age (13.6 and 14.2; CR = 1.0; LA's 13.3 and 14.0). A small and statistically unreliable difference was found for both IQ and MA in favor of the subjects who had been resident pupils for more than 4 years as compared with those who had been resident less than 4 years. (These results are significant as confirming Bradway's assumption that her S's were of average intelligence, and that neither institutional selection nor length of residence vitiated this assumption, her subjects being drawn from the same institution although at an earlier period and perhaps not the same individuals.)

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* The more extensive report (Burchard and Myklebust, 1942) of the same study gives more detailed material. The account herewith is based on the briefer study in the interest of simplicity.

The authors found a mean SQ of 85.0 for N = 54 congenitally deaf, and a mean SQ of 82.4 for N = 50 adventitiously deaf subjects, (D = 2.6, CR = .89). These results were slightly higher for the congenital S's and slightly lower for the adventitious S's as compared with the Bradway results. The congenitally deaf showed somewhat more variability than the adventitiously deaf. Similar results were found for social age (11.37 and 11.94; CR = 1.20; LA's 13.4 and 14.4). Sex differences in SQ and SA were found to be small in amount and statistically unreliable in favor of the boys. Regarding length of residence the authors found a small and statistically not significant difference in SQ in favor of the subjects in residence less than 4 years as compared with those in residence more than 4 years, concluding that length of residence did not materially cause retardation in social competence. No statistically significant central tendencies were found for the relation of personality to social competence.

The authors found a correlation of $r = .38$ between IQ and SQ. Although slightly higher than that found by Streng and Kirk this was appreciably lower than that found by Doll for hearing subjects. It was suggested that the latter discrepancy might be due to the difference in type of intelligence test used (non-language tests with the deaf and language tests with the hearing subjects).

While the results of these authors confirmed those obtained by Bradway rather than those by Streng and Kirk, the discrepancies are not entirely resolved. The discrepancies might in part be due to the personal equation of the examiners; whereas Bradway and Myklebust were trained in the examining procedure at the Vineland Laboratory, Streng and Kirk presumably developed their technique from the brief manual of directions.* More important for present purposes than the evaluation of specific data is the significance of the method for the analysis of specific variables in particular areas of investigation.

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* Examining technique derived from the manual of directions alone may result in differences in procedure in view of the recognized difficulty of establishing comparable skills on the basis of verbal directions alone unsupported by supervised practice. We have elsewhere called attention to this hazard as a possible source of differences in experimental results and in comparative normative standardization and validation material. It is to be anticipated that this book, by affording a more elaborate manual of directions than the condensed manual, may reduce but not altogether overcome such difficulties. We have also endeavored to emphasize in repeated comment the importance of comparable selectivity of subject material as well as examining procedures.

d. The Scale was used by Charlotte B. Avery (1947) in a study of 50 preschool children with auditory handicaps. The S's were 30 boys and 20 girls, between ten months and six years of age, from apparently superior families (as judged by parental education). Thirteen of the S's were from a residential school; the remainder were living at home. Twenty-six of the latter were attending nursery or kindergarten facilities for the deaf in a city day-school. The exact degree of hearing loss had not been determined for all S's, but all had sufficient loss so that they had not learned speech "in the natural way." The acoustic deficits were congenital or had occurred at a very early age. The cause of the handicap was for 70 per cent of the S's unknown, for 10 per cent a result of meningitis, and for the remaining 20 per cent due to infectious diseases. Four of the children were under LA 2 years, 5 were at LA 2, 19 at 3, 14 at 4, and 8 at 5 years. The standard method of examination was employed as a first procedure without allowance for the handicap. The standard procedure was also used as a second method but with modified scoring designed to allow for the handicap.

The results showed no significant differences between the scores obtained by these S's as compared with the normative standardization. Only slightly higher results were obtained by the modified scoring as compared with the standard scoring. The results were therefore more in accord with those of Streng and Kirk than with those of Bradway or of Myklebust and Burchard. But note that these S's were below LA 6 and from apparently superior homes.

Analysis of item failures revealed no very obvious limitations due to hearing except in respect to communication and locomotion items. It was inferred that (1) attendance at the residential school did not materially affect the item scores, (2) the hearing handicap did not interfere with maturation in social competence, and (3) there were no appreciable differences between these and comparable hearing subjects. The author concluded that the Scale was a valid tool for her purposes.

The implication seems warranted that the Social Maturity Scale affords a means for investigating the social maturity of aurally handicapped subjects. Discrepancies in the results seem not so much attributable to Scale errors (except for personal equation of the examiner) as to sampling errors. It follows that the effects of sampling variables may themselves be investigated by this means.

2. *Visual handicaps.*

a. Bradway (1937b, 1937d)* examined 73 pupils attending the Pennsylvania Institution for the Instruction of the Blind at Overbrook, Pa. Three factors were controlled in the selection of subjects, namely, age at becoming blind, degree of blindness, and length of institutional residence. Since the consequences of blindness seem to be influenced by age at loss of vision, the S's were limited to those who had become blind before 4 years of age. They were also limited to those falling in the lowest two groups of the "Table of Uniform Grouping of the Blind" prepared by the Committee on Central Statistics of the Blind, namely, (1) those classed as totally blind or having light perception only, and (2) those classed as having motion perception and form perception but not including "travelling sight," these determinations being based on vision in the better eye after correction, if any. (These two limitations, namely, early age at loss of vision and severe degree of such loss, should be recalled in evaluating the results of this study since these results do not apply to the lesser degrees of handicap nor to those acquired later in life.) The subjects were further limited to those who had been in institutional residence for at least six months. All pupils at the Pennsylvania Institution satisfying these requirements were included in the study except four, one of whom was feeble-minded, another epileptic, and two others for whom the examinations were considered unreliable.

Fifty-one of the 73 S's had been blind since birth, and 22 had lost their sight after birth but during the first four years of life. Sixty-two of the S's were classed as totally blind or having only light perception (25 of these had both eyes enucleated); 11 were classed as having motion and form perception, with

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* The detailed study (Bradway, 1937b) was withheld from publication on the representation of a field secretary for the blind that this population and its environment might not be fairly typical of similar groups. While not concurring in this opinion, The Vineland Laboratory and the author deferred to it. Meanwhile an advance digest had already been published (Bradway, 1937d). The reader is cautioned that the present abstract from the original study may be challenged as perhaps not adequately representative of institutionalized blind subjects in general.

Snellen measurements from 2/200 to 4/200 inclusive in the better eye after correction.

The LA range was from 5 to 20 years, mean LA 13.0 years, with a mode of 12 S's at LA 13. The mean paternal occupational class (Minnesota scale) range was from Class 3 to Class 6, mean POC 4.1. Thirty-four S's were male and 39 female.

All but 4 S's had been examined at various times with the 1916 Stanford-Binet as adapted for use with the blind by Irwin and Hayes, but only a few of them within the preceding year. Because the longest elapsed time since such test administration occurred among the older subjects, the recorded IQ's were accepted as presumptive indication of present mental ability. The range of these IQ's was from 60 to 150, mean IQ 93.

In the absence of significant sex differences the data for the sexes were combined. The mean SA for the group as a whole was 8.0 years, mean SQ 63. The SQ range was from 40 to 89 and showed a tendency to decrease with life age ($r = -.38$).

In the absence of recent measurement of intelligence for all S's the IQ's were converted to approximate current MA's on the assumption of IQ constancy. For 45 S's under LA 14 years the correlation between MA and SA was $r = .59$. Controlled for influence of LA on both terms this became $r = .32$. These correlations were appreciably lower than those previously reported for subjects without visual handicap.

To evaluate the validity of measurement the obtained SA's were compared with estimated SA's obtained from the informants following the examination of each S. The correlation between obtained SA and estimated SA was $r = .81$ which compared favorably with similar data for S's without visual handicap and for S's handicapped by deafness. The estimated SA was .3 years higher than the obtained SA and appeared to be more influenced by MA than by LA.

Item analysis showed that visual handicap (of the degree investigated) did not *inhibit* successful item performance but did *delay* the expression of such performance. All items showed maturational differences in favor of subjects without visual handicap but with different degrees of critical differentiation. This item analysis made possible an evaluation of the effect of visual handicap on particular item performances (details omitted here).

In order to study the effect of age at loss of vision the results from these 73 subjects were compared with corresponding data obtained from 17 pupils at the same institution with LA's between 11 to 22 years but for whom loss of vision had occurred between LA's 4 to 9 years (except for three S's, one of whom became blind at LA 16, another at LA 18, and another at LA 20 years). None of these 17 secondary subjects had degree of vision beyond that of the previous 73; all had been resident in the institution for at least 6 months; all had been blind for at least 2 years.

The mean data for this secondary group were LA 15.6 years, SA 9.5 years, SQ 63, POC 4.7, IQ 85. (Corresponding data for the primary group were LA 13.0 years, SA 8.0 years, SQ 63, POC 4.1, IQ 93.) It will be noted that the mean SQ's were identical, whereas the mean IQ of the primary group was 8 points above that of the secondary group, hence the primary group was the more seriously affected socially. Other considerations revealed no very significant relation for age at loss of vision within the limits of the data.

In the discussion of results the author considered the influence of environment on the results obtained and with special reference to the necessities for NO and NI item scoring as well as the total scores. From the complex of influences considered it was concluded that the Scale was reasonably applicable under the circumstances and that the reduction in SQ as compared with seeing subjects was not merely an artifact of environmental limitation. More positively, it was concluded that the effect of blindness on the expression of social competence was progressively cumulative with advancing years. However, it was also found that none of the performances were failed merely because of blindness, since older subjects succeeded on items failed by younger subjects and also because some examinations of members of the instructional staff revealed blindness as merely an inconvenience, rather than as a bar, to social expression.

In further evaluation of the practicability of the Scale with blind subjects the author noted some practical necessities for a dual system of item scoring but without allowing for the influence of the blindness as such. This involves such considerations as the use of Braille in respect to the higher level communication items, and the use of guides and other devices in respect to locomotion. It is obvious that such considerations emphasize the distinction between social maturity vs. social competence (cf. p. 56) in that the individual is sufficiently mature to be competent within a social environment where the handicaps to expression are overcome by special devices, but where such social maturity does not result in social competence in the absence of such devices.

Following an exploratory appraisal of the results from such dual scoring a correlation of $r = .99$ was obtained between standard scores and scores adjusted to special aids to performance. The mean SQ differences for dual scoring for the various age levels ranged from 0 to 7 points with a total mean difference of 3 points between standard and adjusted scores. Consequently, although this plan of dual scoring gave these visually handicapped subjects due credit for social competence with the assistance of special devices, the net effect was relatively negligible. This result was partly due to the spread of such items over the Scale as a whole whereas the effect of any one item within the range of relative item significance was not of appreciable amount. Consequently, whereas the dual system of scoring materially modified a certain number of items, it did not materially modify the total scores because of the distribution of these items within and without the range of effective operation.

As a further exploration of the reliability of the method, results were obtained for 29 S's by the self-informing procedure for comparison with the results on the same S's from their group supervisors as informants. The correlation between scores obtained by the standard method and those obtained by the self-informing method was $r = .61$, with the social ages from the self-informing method averaging 1.4 years higher than those obtained by the standard method.

It will be noted from this investigation that the use of the Scale with subjects affected by extreme handicaps of vision incurred at an early age poses more difficulties than were encountered in the exploratory studies previously reported in this chapter. It is further noted that in using the Scale with visually handicapped subjects attention must be paid to a number of variables, including the limitations and advantages of institutional vs. non-institutional residence, most of which were not adequately explored in the present study. Moreover, the sample of subjects in this study imposes other limitations on the certainty of the conclusions. In fact, it was such reasons that led to withholding this study from publication pending the pursuit of a similar study under more favorable conditions and with a more careful consideration of related variables. Nevertheless the results, however tentative and insecure, do suggest both the importance and the practicability of employing the method with visually handicapped subjects and the possibilities of the method for evaluating the interdependence of the variables involved. Meanwhile the study has some significance as suggesting a larger influence of blindness as a handicap to social competence than is the case with deafness.

Commenting on the differences in her results for blind versus deaf subjects Bradway (1937d) noted that: "The blind appeared to be more restricted in their activities than did the deaf, but this greater restriction may have reflected a greater incompetence of the blind as compared with the deaf, rather than a greater administrative restriction." The effect of these restrictions on SA, for both types of S's, was largely neutralized by the use of NO item scores. The author further observed: "There is evidence that the deaf and the blind do not dominate their environment as much as does the average person. Therefore, environmental limitation or stimulation may be a more important factor in raising or depressing the social competence of the deaf and the blind than of those who hear and see." (Note that Maxfield and Fjeld's results also suggested that their blind S's tended to be more docile and have less initiative than their partially seeing S's.)

b. Maxfield and Fjeld (1942) endeavored: (1) to investigate the Scale as a useful measure of the general social competence of visually handicapped preschool children; (2) to work toward an adaptation of the Scale for the comparison of such children with each other rather than with seeing children; and (3) to evaluate item performances for other purposes. These aims were pursued through: (1) quantitative measurement of *ad hoc* social age scores for two major degrees of visual handicap as compared with each other and with seeing children; (2) the use of item analysis for generalized interpretation of personality differences and the relation of training to maturation; (3) longitudinal growth studies with individual subjects; (4) case history evaluation; and (5) an adaptation of the Scale for use with visually handicapped subjects within their own group.*

A total of 101 visually handicapped children ranging from LA 9 months to LA 6.9 years were examined by competently trained examiners. Apparently the S's were examined in cooperation with various agencies and institutions for the care of the blind as well as from some families outside the scope of these agencies. Only the first 77 items of the Scale were used (as representing the limit of the maturational aptitudes of the S's).

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* The study here reported is a digest of a more complete account on file at the lending library of the American Foundation for the Blind.

Mental ability varied from extremely low to very superior mental level, with the S's classified in three groups as superior, normal, and retarded, on the basis of general evidence. Degree of blindness varied from total blindness to a degree of sight which made independent activity possible; those with no vision or with only light perception were classed as blind, and those with usable degree of sight as having partial vision. Sixty-one of the S's were boys and 40 girls, 12 were colored, 5 were premature births, 42 had had serious illnesses, 15 had additional handicaps, 4 had progressive visual loss, 20 showed improved vision. The range of apparent onset of visual difficulty included 60 S's with defect noticed at 2 weeks, 22 at one year, 7 between 2 to 6 years, and 12 unknown. Fifty-five S's were regarded as mentally normal, 16 as superior, 21 as retarded, 7 as very retarded, and 2 as "special cases." Of 92 S's in the principal group (excluding the 7 very retarded and the 2 special cases) 46 were classed as blind and 46 as having partial vision.

The principal quantitative results (92 S's) yielded SQ 83.5, SD 29, extreme range 26 to 163. The results for the 55 mentally normal S's yielded the same mean SQ (83.5), SD 18, and extreme range 40 to 119. It was observed that the extreme variability was even more striking than the mean retardation as compared with the norms for seeing children.

From the overall data, detailed item analysis was made with regard to the comparative difficulty of the items for the visually handicapped as compared with the normative standardization. Twenty-nine items were found to show rank order differences of 5 or more ranks; 14 of these were relatively more difficult for the visually handicapped than for the normative seeing, and 15 were relatively easier. The identification of these items could not easily have been anticipated from *a priori* considerations; these data therefore contribute materially to a better understanding of the performance aptitudes of the visually handicapped preschool child. In scoring the items, certain allowances had been made which favored the expression of the central themes of the items although modifying their specific requirements for seeing subjects. The significance of these item differences was then evaluated as interpretations from the data. It was noted, for example, that it was easier for the preschool visually handicapped child to find his way about the house and yard than to manipulate a spoon successfully. Implications were developed in the direction of personality analysis with the inference that these subjects on the average appeared to be more docile, less active, and apparently with less initiative than seeing children of corresponding ages.

The effect of degree of handicap was evaluated by a comparison of matched groups of 28 blind and 28 partially seeing S's, and unmatched groups of 46 blind and 46 partially seeing S's. For the matched groups the mean SQ was found to be 80.2 for the blind, and 87.7 for the partially seeing S's. For the unmatched groups the mean SQ was 75.9 for the blind, and 91.2 for the partially seeing S's. Detailed item analysis for the two degrees of visual handicap was made with respect to both absolute and relative comparative difficulty of the items and with respect to the interpretation of these results. With few exceptions those items which were relatively more difficult for the blind were also relatively more difficult for the partially sighted. It was observed that the blind children tended to excel in items which required less initiative and less outgoing behavior as compared with the partially seeing subjects.

Item analysis was then continued for establishing a mean progression of item difficulty for visually handicapped subjects. For this purpose the 92 S's (blind and partially seeing) were used and the results compared with the normative item standardization. Thirty-two items (Item range 15 to 52), with maturation curves from 0 to 100 per cent of passes, were calibrated by the Thomson method. These results showed a displacement of item difficulty of about one year per item in the direction of delayed maturation for these visually handicapped S's versus the normative (seeing) item standardization.

An attempt was made to analyze the longitudinal results from three or more consecutive examinations at approximately three-month intervals for 31 subjects. However, the data were not satisfactory for analysis because of the small number of S's, the limited number of examinations and the relatively short time-intervals.

Analysis was then made of case history data for 17 S's in relation to social maturity data. These histories showed close agreement between behavior notes and the trends indicated by the social maturity scores. This was considered especially noteworthy because of the wide range in behavior level. It was also noted that the SQ's appeared to be affected by a number of factors, such as health, specialized training and general environmental influences. Improvement in vision appeared to be an important factor in two cases, and of possible significance in two others. Deep-seated emotional disturbances appeared to play definite roles in lowering the SQ at specific periods in the development of three S's. On the other hand a tendency was noted for the SQ to rise during the child's institutional residence. It seemed apparent that such residence and special training favored the otherwise delayed maturation in the early period of life. However, some children showed a tendency for the SQ to "level off" even under intensive continued training, and in some instances the stress of training seemed to produce a disintegrating effect. (Bradway also reported a tendency for the SQ to decrease with LA during institutional residence.)

Finally, the authors proposed a tentative adaptation of the Scale (both item specification and item placement) for use with visually handicapped preschool children. Considerable difficulty was experienced in avoiding the temptation to employ conventional *test* performances as substitutes for reports of habitual behavior. The aim of this adaptation was to provide for a direct evaluation of the social competence of visually handicapped subjects within their own limitations, rather than in terms of normally seeing subjects. The pitfalls and difficulties encountered are apparent in the results obtained. (Note again (1) the distinction between social maturity vs. social competence, (2) the distinction between test-capacity vs. habitual performance, (3) the need for separate norms without vs. with particular handicaps, and other related issues repeatedly stressed in earlier pages.)

Note that the S's in this study were at the preschool years while in the Bradway study they were principally beyond that period. Since both Bradway and Maxfield and Fjeld found a tendency for the SQ's of blind S's to decline with advancing years, some of the difference between the Bradway mean SQ of 63 and the Maxfield and Fjeld mean SQ of 76 is due (for comparable degrees of handicap) to the influence of age. The mean SQ for Bradway's subjects between LA's 5 to 7 years was 73 as compared with 63 for her total LA range.

We are here not so much interested in determining the actual social competence of visually handicapped subjects as in revealing the investigational usefulness of the Scale with handicapped subjects. The above study is particularly rich in this regard.

c. Many of the considerations apparent from the study by Maxfield and Fjeld were recapitulated and exemplified in a clinical evaluation of three preschool children as studied by McKay (1936) at the Arthur Sunshine Home and Nursery School for the Blind at Summit, New Jersey, namely, a 2-year old boy, a 3-year old girl, and a 6-year old boy. In view of the clinical nature of this report it is impracticable to summarize the detailed observations here. The report is especially interesting as revealing the same considerations previously discussed but in a clinical rather than a group setting.

3. *Orthopedic handicaps.*

The use of the Scale with "crippled" subjects (deformities, amputations, fractures, organic or neuromuscular involvements, and so on) presents a severe test of its practicability. In addition to the limitations (and perhaps advantages) to social competence imposed by the type and extent of such handicaps one must reckon with the possible consequences of such variables as the cause of the disability, age at onset, duration, related body mechanics, effectiveness of therapy, adaptive substitutions, and so on. One must also consider secondary involvements such as degree of intelligence, correlated disabilities (perceptual, motor, sensory), emotional reverberations (frustration, apprehension, overcompensation, rejection), social consequences (protective and limiting), compensatory substitutions (including actual capitalization of the handicap), morale, and other consequences associated with or ensuing from the handicap. Obviously the specific nature of the handicap and of these associated consequences will affect performance on individual items of the Scale, or even on whole categories of items, and therefore on the total scores. One must also allow for motivation, age, past experience, adaptiveness, and overall personality. One is often astonished by the extent to which physical handicaps may be either compensated or aggravated by adventitious personal or social circumstances.

These difficulties are not easily differentiated among subjects whose handicaps may vary from almost complete physical helplessness to minor expressive embarrassments. It is even impracticable to illustrate the range and consequences of these involvements. Yet one may observe that mere size alone, or any conspicuous blemish or deviation from the usual, may influence the expression of social maturity as social competence. How the individual responds to extreme deviation in height or weight, hair color, skin blemish, speech, and so on is a highly personal phenomenon, the consequences of which may readily be observed by the examiner of sufficient insight yet obscured in group studies because of the variable effects. One person may philosophically accept his deviation with neutral consequences. Another may react negatively with consequent inhibition of effort. A third may overcompensate with agressiveness, hostility, or personality conflict.

a. Bradway (1937d) emphasized the difficulties encountered in employing the Social Scale in quantitative studies of crippled children because of the difficulties of selection of subjects with regard to degree of disability and the classification of orthopedic handicap. She noted that there was no satisfactory measure of the per cent of loss of movement comparable to the loss of hearing or vision, and further that the severity of the handicap was determined by the direction and severity of crippling as well as its nature. Thus, crippling in one member may not be comparable in its effect to that of another member or may be compensated for by lack of crippling in a corresponding member. There is also some compensation of the effects of crippling due to the use of artificial limbs or other devices and the effects of corrective orthopedics.

Seven boys with various degrees of crippling associated with intracranial damage from birth were examined at the Babbitt Hospital. Four of these boys were athetoid in all four extremities and in speech. The other three showed spasticity of the legs. The 1916 Stanford-Binet IQ's of these 7 boys (modified to allow for limitation of expression) ranged from IQ 96 to 107, with LA's ranging from 7 to 12 years.

Of these 7 boys the 4 who were handicapped in all four extremities showed social quotients centering about 30. The three not so severely crippled showed SQ's around 70. It was pointed out that these results are not representative of crippled children in general. No items of the Scale seemed inapplicable to these crippled subjects since all item failures represented genuine incompetence due to the physical handicap. All 7 of these S's showed special difficulty in locomotion items. The 4 S's whose arms as well as legs were affected showed additional difficulty in occupational and self-help items.

Bradway also reported on 27 feeble-minded subjects whose handicaps of movement varied from hardly noticeable tremors to severe crippling in all four limbs. The item performances of 23 of these S's showed no inferiority due directly and obviously to crippling, whereas 4 S's were obviously handicapped on some items because of crippling. The 23 S's without major crippling showed a somewhat greater inferiority of SA to MA than was found for non-feeble-minded crippled subjects, but the results were difficult to interpret because of other variables. The four S's with specific crippling showed marked inferiority of SA to MA.

b. Doll (1935b) reported on 18 mentally deficient subjects with various degrees of crippling as a result of birth injuries, median LA 29.0, MA 8.0, and SA 9.0 years. The anticipation that the SA's of these crippled subjects would be seriously reduced because of their physical handicaps was not supported except in the most severe wheel-chair cases, although even among these the difference between MA and SA was not markedly different than among the other subjects. Indeed, some of the highest degrees of SA superiority over MA were found among these crippled patients. These results showed a wider range of differences, but not a marked difference in central tendency, for these crippled feeble-minded subjects as a group. (It should be noted that some of the consequences of crippling are positive with respect to social competence instead of negative. It should further be noted that the effect of crippling is minimized by the distribution of affected items throughout the Scale as a whole so that the influence on particular items does not very markedly affect the much larger number of unaffected items within the range of performance intermediate between complete success and complete failure.)

c. Reporting on 11 boys with cerebral birth palsy at Babbitt Hospital, Phelps (1937) noted an average SQ of 56 among children of average and superior mental ability. The average LA of these subjects was about 9 years. They were of average intelligence or above. Approximately half of them were spastic and the others athetoid (all ambulatory). Five of the S's were quadriplegic, one triplegic, one hemiplegic, and three paraplegic. Six of the 11 S's had speech impairment due to muscle defects.

d. McIntire (1942a), working with 20 patients similar to those reported by Phelps, considered scores from the Scale as "possibly the best indication of the motor improvement" resulting from physical therapy. At the beginning of the experiment the SQ range was from 25 to 90; at the end of the experiment it was from 35 to 115. It was observed that "Although the change in range of the social quotients reflects gains in general functioning which in these cases can be attributable primarily to improved physical functioning, the full significance of the change is obscured by the age factor." It was noted that the *rate* of social maturation during the period of treatment was approximately three times as great as the cumulative rate of maturation prior to the experiment. Moreover, at the end of the experiment more than one-fourth of the group were functioning at or above age, and there was a fair number of others approaching this limit, although at the beginning of the experiment all of the subjects were below average.

e. Another report of the same experiment (McIntire, 1942b) contained LA-SA individual growth curves which showed generally average-normal SA annual growth increments (while under physical therapy treatment) in spite of generally severe SA retardation prior to treatment. This report also reported growth curves of improvement in walking for a series of locomotion items formulated according to the Scale's pattern of item specification. (This possibility of expanding or modifying particular categories or age-levels for specific situations is a noteworthy feature of social maturity measurement for which the Scale as a whole "sets the stage.")

The above several reports have orientation value as preliminary indications of the possibilities of the method with orthopedically handicapped subjects. These studies were not reported in sufficient detail for careful evaluation, nor did they afford systematic evidence on the relation of social maturity to other types and degrees of handicap of sufficient extent to warrant valid inferences. Nor did these reports comment on the practicability of double-scoring in terms of presumptive performance if the handicap were not present. These applications of the Scale therefore should be considered as early explorations which suggest that the Scale affords a means for both practical evaluation and investigational studies of orthopedic subjects.

f. A systematic study of 75 physically handicapped children, from six orthopedic classrooms in the public schools of various Michigan cities, was made by Anna A. Rizzardi (1941). The examining procedure was modified by sending record blanks and copies of the brief manual to the Ss' teachers, who thus served in the dual capacity of examiner and informant. (The teachers were in a specially favorable position to act as informants though there might be some doubt as to their ability to serve also as examiners.) The item performances for each S were then scored by the teachers, but the summation of scores and all subsequent treatment of data were performed by Miss Rizzardi. Information was also obtained regarding such variables as (1) nature and degree of physical involvement (parts affected), (2) orthopedic history, (3) etiology of the handicap, (4) schooling, (5) family situation, and (6) intelligence. (IQ's for 58 S's were obtained from a variety of unspecified procedures, presumably chiefly Stanford-Binet, and treated as comparable data.)

For present purposes we note from the detailed analysis of data (1) that the nature and degree of the physical involvement influenced item performance, and (2) that this variable exercised a permeating influence on the significance of subsidiary data (specific effects not clearly isolated).

The S's represented principally the lower social-economic occupational classes, with none of the professional classes represented. About one-quarter of the S's were spastic paralytics, and another quarter were affected by poliomyelitis. The remainder showed a wide variety of physical handicaps, with not more than three S's in any one classification. Twenty-three per cent showed involvement of one or both legs, 9 per cent one or both arms, 13 per cent arm and leg, 12 per cent back and legs, 13 per cent general body involvement, and 9 per cent heart affection; the remainder fell below 9 per cent in any one group. The number of boys and girls was approximately equal and not significantly distributed in respect to the several variables except with minor accidental selectivity. Half of the conditions were present at birth; for the other half (omitting unknown) the median age of onset was approximately 7 years. The median duration of the disabilities was approximately 10 years.

Results from the Social Scale (75 S's) were as follows: median LA 11.3 (Q 5.1), median SA 10.6 (Q 4.3), median SQ 94 (Q 15.5), SQ total range 3 to 120. The corresponding results for intelligence (58 S's) were: median IQ 100 (Q 7.4, total range 49 to 156). (The median SQ for these 58 S's was 96, Q 14.1).

The total data were analyzed for the influence of the several variables, but in the absence of allowance for the selective influence of specific physical involvement the results were of uncertain significance. The widest variability was found in the group diagnosed as spastic paralysis (SQ range 3 to 108). The least variability occurred in the cardiac group (SQ range 88 to 120). The poliomyelitis group fell between these two (SQ range 58 to 120). With respect to specific handicaps, the widest variation was in the group with "general involvement" (SQ range 3 to 103).

The relation of IQ to specific handicaps was not reported. The IQ distribution (for 58 S's combined) was approximately symmetrical (IQ range 49 to 156, median 100) whereas the SQ (all S's) distribution was definitely skewed (SQ range 3 to 120, median 94).

There was also an apparent influence of size of family on SQ (type and degree of involvement not selectively analyzed) with median SQ 89 for subjects with one or two sibs, and median SQ 98 for subjects with 3 to 10 sibs.

The results from item analysis were difficult to evaluate in relation to the specific handicaps with due regard for normative LA expectation. The categorical evaluations, however, were rather clearly evident for particular types of handicap.

This study suggests that the Scale is a practicable instrument with physically handicapped subjects. The validity of the measure for interpretation is not so clear, partly because of the difficulty of establishing commensurate norms. It seems impracticable to evaluate social competence independently of the nature and extent of the primary involvement and its secondary accompaniments. Nevertheless it is apparent that whereas the *median* social quotient for these physically handicapped S's was close to the normal average, the total *range of deviation* was markedly abnormal and was related to particular involvements. (While the median SQ closely approximated the median IQ for the group as a whole, the inter-quartile range of deviation for SQ was twice as great as for IQ. The total range of sub-average deviation was greater for SQ than for IQ, and vice versa for the supra-average range.) The results further revealed a cumulative effect of social retardation with prolonged duration of the handicap (median SQ 102 for duration of 1 to 5 years, median SQ 89 for duration 6 to 10 years, and median SQ 85 for 11 to 16 years). However, this result may reflect selective sampling, since minor handicaps in the early years might be mitigated in the later years.

The author concluded that the Scale was helpful as (1) revealing the social limitations and assets of these orthopedically handicapped children, and thereby (2) suggesting the most desirable and promising directions for their optimum rehabilitation and maximum self-realization.

This resume is limited to the text of the author's report. Further analysis is possible by those interested, since a summary of original data by individual S's is included in an appendix to the report. As previously noted, such analysis would be significantly affected by the specific nature and extent of the particular handicap of each S. Any partial analysis which disregards the specific involvements might be more misleading than informing. The data are therefore more valuable clinically than statistically. In their evaluation it should be recalled that a modification of the standard method was employed for the Social Scale and that the IQ data were of perhaps doubtful standard comparability.

VI. MENTALLY HANDICAPPED SUBJECTS

1. *Feeble-minded.*

A number of early studies reported fragmentary data for small groups of institutional mentally deficient subjects. As the amount of the material and the direction of these studies expanded, more stable evidence was gradually accumulated. Most of the expanded material for subjects at the Vineland Training School has been presented previously in Chapters 10 anl 11 as superseding earlier studies. In the present chapter other relevant material has already been reviewed in relation to growth variables, inheritance, twins and siblings, and senescent involution. The present section is therefore confined to material not previously presented or to topics not previously having received adequate emphasis.

a. (General evidence.)

(1) In the earliest published statement of preliminary results (Doll, 1935a) one estimate of validity was obtained by comparing the rank orders of observed social competence for 25 VTS boys as reported by the Supervisor of Boys. When compared with measured SA's this yielded a correlation of R = .81. This correlation dropped to R = .48 when SQ was used instead of SA, thus revealing a tendency to rate these subjects more heavily in terms of actual social level rather than relative social "brightness." Similarly for 11 girls a correlation of R = .65 was found between the ranks assigned by the Girls' Supervisor as compared with SA ranks. This correlation rose to R = .78 when SQ's were used instead of SA's, indicating a tendency for the Girls' Supervisor to be more influenced by relative than by absolute ability—a reversal of the tendency

revealed by the Boys' Supervisor.

(2) In a later report (Doll, 1935b) 100 male S's were ranked by the Boys' Supervisor, 85 female S's by the Girls' Supervisor, and 200 S's of both sexes by the Director of Education and by the Chief Clinical Psychologist. The results of this involved study were not reported in detail. Comparison with measured SA rank revealed an average rank difference of ± 10, with a range from + 35 to − 56. The results showed a definite tendency toward underestimation of social ability by large amounts in a few cases, and toward overestimation by small amounts in many cases (using obtained SA as standard). The study further revealed the value of the Scale in discovering the unobtrusive individual whose lack of aggressive behavior caused his social ability to be underestimated. It also showed a tendency to estimate social competence in terms of social usefulness rather than in terms of social independence.

(3) Five S's were studied (Doll, 1935b) whose classification had been changed from high-grade borderline pupil to full-time employee status. The social ages of all of these subjects were between 18 to 20 years, whereas the highest SA of other institutional subjects was 17 years.

(4) A study of 10 subjects (Doll, 1935b) was made to see how soon after admission to the institution the results from the Scale might prove practicable. It was found that results obtained after a period of two weeks of residence were not materially different from those obtained after longer periods of residence.

(5) Preliminary data on the relation of SA to cultural level were reported (Doll, 1935b) for 81 mentally deficient S's. (This topic has been dealt with more comprehensively elsewhere in this volume, e.g., p. 442 and p. 487.) It was found that with MA or IQ controlled the SA's for the S's of inferior social selection were above those for the S's of superior selection.

(6) A trial study was reported from Vineland State School (Doll, 1935b) for 10 colored female S's, all of whom were sex delinquents, compared with 11 white female S's, 7 of whom were sex delinquents. All of these S's were of paternal occupational class V. The results showed slight and apparently unreliable differences in favor of MA for the colored and in favor of SA for the white subjects. This result was contrary to the results elsewhere reported herein for delinquents (colored MA below white and colored SA above white).

(7) Preliminary data on test-retest reliability were reported (Doll, 1936b) for 123 re-examinations distributed as follows: (a) 12 S's re-examined by same examiner and same informant, (b) 68 S's re-examined by same examiner and different informants, (c) 18 S's re-examined by different examiners and same informant, and (d) 25 S's re-examined by different examiners and different informants. All examiners were adequately skilled in the method and all informants adequately familiar with the subjects. These re-examinations were made at intervals varying from one day to 9 months and were analyzed for influence of examiner, informant, time interval, life age and social age. The average differences for these repeated examinations were approximately .5 years, with extreme differences less than 2 years. The majority of repeated scores showed agreement within one year. No significant variations were found for the several variables studied. Taken as a whole the data showed a correlation of $r = .92$ between first and second examinations. No growth changes were observed in the short period covered by these re-examinations of these mentally deficient subjects.

b. (Degree of deficiency.)

Several attempts were made by members of the Vineland research staff to establish differential SA limits for idiocy, imbecility, moronity, and dull normality in accordance with the hypothesis (Doll, 1936a) that these categories constitute relatively distinct clinical syndromes. These endeavors did not succeed in establishing scientifically acceptable conclusions. However, empirically plausible limiting scores seemed apparent for adult S's (beyond the maturity ceilings of MA and SA) as represented in Table C (based on Otness and Horan, 1942).

TABLE C

MA AND SA BOUNDARIES FOR CLINICAL DEGREES OF MENTAL DEFICIENCY

Category	Ultimate Binet MA range	Ultimate SA range
Idiocy	0 — 3.2	0 — 4.0
Imbecility	2.8 — 8.5	3.0 — 10.0
Moronity	7.5 — 13.0	9.0 — 17.0
Borderline normality	8.0 — 13.0	18.0 — 20.0

These results, although suspiciously "neat," represented candid approximations of the clinical evidence and were in fair harmony with other considerations (cumulative experience, data from other studies, correlated speculation, confirming opinions of co-workers). They suggested fairly sharp limits of differentiation (but not by identical amounts) between idiocy and imbecility and moronity. For moronity versus dull normality they indicated complete overlap in MA but complete mutual exclusion in SA. These limits are guides to clinical practice rather than substitutes for total clinical appraisal (cf. Doll, 1919).

For S's below the maturational ceiling of either MA or SA the results were less clear-cut because of the difficulty of appraising degree of deficiency in relation to the course and extent of ultimate development.

The results from differential item analysis for both scales were too involved for presentation here in view of the intricacies of small sample discrimination and the influence of attending variables.

This study is included here as a pilot approach meriting further pursuit. Its outcome seems to "hold up" under protracted use as a working hypothesis.

c. (Double scoring.)

From among the other unpublished studies with mentally deficient subjects at the Vineland Training School we include in this review one on the double scoring of special subjects (cf. p. 292) allowing for particular handicaps. The data for this study were gathered by Kathryn F. Deacon (1940) following special instruction in this use of the method. The practicability and results of this use of the Scale are only briefly noted as follows:

(1) Twenty-seven S's clinically diagnosed as "not feeble-minded," or doubtfully feeble-minded," were double-scored with regard for the influence of environmental (institutional) restrictions on performance (i.e., what the S's performance presumably would otherwise be, in this case plus scores for + NO.) The amount of individual SA increase was from 0 to 2.1 years, median SA increase .5 years (LA range 10-57 years, median LA 20). Twenty of these S's showed increases of less than 1.0 years. The SQ increase was from 0 to 11 points, median SQ increase 3 points. The SA range for these S's (restrictions allowed for) was from SA 2.9 to SA 19.0 (the "top" S was subsequently transferred to employee status), and the corresponding SQ range was from 24 to 78. Many of these "not feeble-minded" S's were affected by other disabilities not allowed for as such in this evaluation (e.g., crippling, sensory defect, psychopathic condition). The number of items affected by institutional restrictions ranged from a minimum of 0 to a

maximum of 8 for any given S.

(2) For 16 mentally disturbed S's (ranging from emotional instability to psychotic complications) the individual SA increases with the mental disturbance "discounted" were from 0 to 2.2 years; half of the S's showed no change, while 4 S's showed SA increases of 1.0 to 2.2 years. The SA range of these S's (handicap allowed for) was from SA 3.0 to SA 12.0 years. The SQ increases (handicap allowed for) was from 0 to 12 points; half of the S's showed no change, while 4 S's showed increases of 11 to 12 points. The number of items affected by allowing for the handicap was from 0 items for some S's to a maximum of 10 items. These S's as a group showed no appreciable handicaps in addition to mental deficiency other than mental disturbance.

(3) Four S's with serious heart disorders (sufficient to presumably modify social competence) showed little gain from double-scoring. Two of these S's showed no SA increase with the handicap allowed for, one showed SA increase of .2 years, and the other of .8 years. The SQ changes were from 0 to 3 SQ points. Two S's showed no item changes, one showed one affected item and the other 3 affected items.

(4) Thirteen S's classified as having neurotic tendencies, with unstable behavior bordering on mental disturbance, showed SA increases of 0 to 1.8 years with the neurotic tendency allowed for. The results for this group were closely similar to those for the mentally disturbed group, but with lesser degrees of modification in the double-scoring.

(5) Thirty-one S's were double-scored with reference to major defects of vision and hearing. Some of them had multiple defects, including speech and movement. With these single and multiple defects allowed for the individual SA's were increased by 0 to 4.4 years, median increase .3 years. Twenty-one of these S's showed SA increases of less than 1.0 years, including 9 S's with no increase. The SA range (handicaps allowed for) was from 2 to 18 years. (The S with SA 18 was classed as dull-normal, deaf, crippled, with speech handicap. The net change for this S with all handicaps allowed for was from SA 17.3 to SA 18.3 years, the actual influence of all restrictions being apparent on only 3 items). The SQ increases for these S's were from 0 to 30 SQ points; half of them showed SQ changes of less than 2 points. The total number of items affected varied with the SA level itself and with the number and severity of the handicaps. For 9 S's no re-scoring modification was necessary,

while for one S 6 items were affected by speech, 9 by vision, and 10 by hearing, or a maximum of 25 items (however, 14 of these items were duplicated, leaving a total of 11 affected items). For this S the SA change was from SA 5.7 to SA 8.1 years, with SQ change from 32 to 45. The largest number of affected items for any one S in this group was 21 items, with SA change from SA 3.4 to SA 7.8 years, and SQ change from 23 to 53 (this marked case was a boy with visual defect, speech defect and personality deficiency. However, this boy had been in residence only one month and it is possible that the primary score may have reflected undercapitalization of aptitude rather than the effect of genuine handicap.)

(6) Forty-seven S's with various degrees of crippling showed SA increases, with the handicap allowed for, of 0 to 6.4 years. Twenty-one of these S's showed no SA change under double-scoring, 3 S's showed increases of 1 to 2 years, 4 of 2 to 3 years, 2 of 3 to 4 years, 2 of 4 to 5 years, one of 5 to 6 years, and one of 6 to 7 years. The SQ changes were from 0 to 62 SQ points, with 36 S's showing SQ changes of less than 10 points. The largest single change was from SA 2.9 to SA 9.3 years (for an S with LA 10.3 and MA 8.3 diagnosed as dull-normal. The crippling of this S significantly affected his performances on 35 items.)

(7) Nine S's with convulsive disorders showed SA increases of 0 to 2.3 years with the handicap allowed for. Six of these S's showed no change, one showed a change of .3 years, another of .6 years and another of 2.3 years. The maximum number of items affected was 3. The SQ changes were from 0 to 4 SQ points.

In general this study showed the practicability of double-scoring to allow for special handicaps other than intelligence with mentally deficient S's. The general effect of such double-scoring was to bring the social ages into closer approximation with the mental age expectations and into more general harmony with each case-study appraisal as a whole. Obviously, in such double-scoring the examiner must be on guard against overestimation or underestimation of the effect of the handicaps on particular item performances. The number of items so affected will depend upon actual range of item performances for a given S, and the variable number of items at different SA levels. In the main this study revealed relatively minor consequences of special handicaps in addition to mental deficiency, the major changes produced by double-scoring appearing in only a few instances, particularly in relation to severe degrees of crippling. The SA's of the majority of such S's were affected by amounts little or no larger than the probable error of measurement. One obvious value of double-scoring is to suggest the social improvement that might be anticipated from measures designed to ameliorate the handicap.

d. (Training [idiocy])

(1) A differential study of idiocy was undertaken by Noemi Morales (1942) with two groups of subjects. Fourteen of these were from the Vineland Training School, selected on total clinical evaluations. Repeated examinations of these S's had been made on an average of 7 times over a period of 5 years. The LA range was from 7 to 61 years, length of institutional residence from 2 to 54 years, Kuhlmann-Binet MA from .9 to 3.3 years, and Binet IQ from 4 to 21 points. This group was considered from the standpoint of short-term longitudinal maturation.

One hundred forty patients from the State Colony at Woodbine, New Jersey, were examined to provide a cross-section study of a larger group of S's with single Social Scale examinations. These S's were selected on the basis of mental age alone. The LA range was from 6 to 38 years, length of institutional residence from 1 to 19 years, Kuhlmann-Binet MA from 0 to 2.99 years, and IQ's from 2 to 29 points.

Fifty-seven per cent of the Vineland group and 65 per cent of the Woodbine group were without speech (the remainder having grossly limited speech); 7 per cent of the Vineland group and 15 per cent of the Woodbine group were crippled; 6 per cent of each group were blind, and 6 per cent epileptic; 7 per cent of the Vineland group and 2 per cent of the Woodbine group were deaf-mutes; none of the Vineland group and one per cent of the Woodbine group were deaf. These limitations to behavior were considered broadly representative of idiots in general.

The social ages for both groups fell between SA .24 to 3.6 years, and the social quotients between SQ 2 to 29 points. The highest successful item performance was at Year IV-V (Item 54).

The S's were then considered in terms of item performances in relation to environment and training. It was observed that improvement over the period of five years for the Training School S's had been slight in spite of specific training over a median length of residence of 13 years (but perhaps because of the relatively advanced median life age of about 20 years).

It was found that the median SA for the S's without physical handicap was 30 per cent above their median MA. For the blind S's the median SA was 34 per cent below MA, and 64 per cent below the sighted S's. For the crippled S's the SA was 22 per cent below MA, and 52 per cent below the non-crippled S's. Epilepsy, however, had little apparent effect, and mutism was considered as one evidence of idiocy.

In general the author concluded that the Scale yielded a confirming picture of the symptom-complex concept of idiocy, and suggested that the accomplishments of idiots with respect to training and its retention could not be divorced from the factor of maturation.

(2) The influence of intensive training on the social competence of idiots was studied by Mrs. Deacon (1942) with a small number of low-functioning mentally deficient children at the Vineland Training School. The S's were 5 boys and 4 girls. One showed mild athetosis, one spastic quadriplegia, one spastic hemiplegia, one microcephaly, one mongolism, and one was receiving thyroid medication but without apparent benefit. Five of the S's were clinically classified as idiots, 3 as imbeciles, and one as a potential imbecile. Four S's had no speech, 4 used single words and phrases, one could converse. The LA range was from 7 to 22 years, with 6 of the S's below LA 12 years. Kuhlmann-Binet MA scores ranged from 1.2 to 2.7 years, with one S at 1916 Stanford-Binet MA 5.0 years. Corresponding IQ's were from 13 to 36 points. The SA range was from 1.7 to 2.8 years. Average length of institutional residence was 2.5 years, with one S resident for 12.5 years. Six of the S's were under the intensive training program for one year, one for .7 years, and 2 for .3 years.

The design of the investigation was based on studies of the capabilities of idiots begun by Doll in 1924 (see p. 4) and carried forward by job analysis techniques by George H. Buhl (see p. 29) in collaboration with Doll during the period 1925-1930. It also carried forward previous work from The Vineland Laboratory on the evaluation of training procedures by means of progress reports on a Cottage Activities Chart. In the present investigation this Cottage Activities Chart was used to obtain reports on the effects of intensive detailed training in relation to level of maturation. Monthly reports were obtained on the Cottage Activities Chart and with the Social Maturity Scale.

The total number of points obtainable on the Cottage

Activities Chart was 216, but the optimum number of anticipated points was 175. The average first score on the Chart was 57 points, and the average amount of anticipated possible improvement 118 points. The actual average amount of improvement was 28 points, or 23 per cent of the anticipated possible increase. It was anticipated that the results from the Cottage Activities Chart, by dealing with minute steps in the measurement of social competence, might yield more precise results than could be obtained from the Social Scale because of the latter's relative insensitivity to slight improvement at this low degree of competence.

The gain of 28 points on the Activities Chart corresponded to a final average SA increase of .3 years, that is, from SA 2.1 to SA 2.4 years. The correlation between final SA score and final Activities Chart score was R = .47 for this relatively narrow range of aptitudes.

The study indicated the limited amounts of learning achieved, and also the directions in which training efforts proved unsuccessful, presumably because of static maturation. In general the study confirmed the use of the Scale not only as a valid measure of the social competence of idiots but also as a correlative measure of the progress results from specific and intensive training even when reduced to fine units of measurement.

(3) Bassett, Longwell, and Von Bulow (1939) employed the Scale in a study of the aptitudes, training possibilities, and achievements of idiot boys at the New Jersey State Colony for Feeble-Minded Males at Woodbine. The study was made to evaluate "a system of training in which the original purpose was not to hope to raise the intellectual status of the idiot . . . but rather to substitute activity for apathy, some semblance of social maturity for complete dependence and emotional expression for repression." The S's were 50 boys who had been taught self-help, to aid in some occupation, or to do simple handwork. Eleven of these were subsequently eliminated because of deaf-mutism, serious crippling, or other special handicaps. The remaining 39 boys were examined with the Kuhlmann-Binet and the Vineland Social Maturity Scale. The LA range was from 11 to 49 years, average LA 25.8 years. The MA range was from 1.2 to 3.8 years, average MA 2.6 years. The SA range was from 1.7 to 4.9 years, average SA 3.2 years. The IQ range was from 9 to 28 points, average IQ 20. The SQ range was from 8 to 23 points, average SQ 17. Length of institutional residence was from 2.3 to 16.9 years, average

residence 9.9 years. The S's were described as partial or incomplete idiots rather than as including complete, absolute or profound idiots. (It will be observed that the upper MA and IQ limits were somewhat above those usually employed for idiots, and that the upper SA was above the limit established by the Vineland Laboratory. The superiority of SA over MA for idiots without special handicap was similar to that found by Morales.)

The authors reported an analysis of Social Scale item performances by categories and a discussion of the training possibilities and achievements of these subjects. This material is too detailed for review here but suggests the importance of specific methods of training for idiots in terms of social competence, and the measurement of such aptitudes and achievements by means of the Social Scale. It may be inferred that the use of the Social Scale in such a situation afforded a definite incentive toward stimulating new training aspirations.

e. (Physical therapy [cerebral palsy].)

Longwell (1935b) studied the effects of muscle training with "birth-injured" mentally deficient children with reference to improvement in social competence. This study is of special interest as a forerunner to the Scale. In fact, the schedule of performances employed in this study led directly to the formulation of the Scale as a standardized instrument (cf. p. 4). The author was concerned with the consequences of physical therapy (muscle training) in the spontaneous capitalization of improvement of social behavior ensuing from such therapy. It was assumed that the improvement in motor facility and body mechanics might be reflected both directly and indirectly in personal-social behavior.

The improvement of an experimental group of 10 mentally deficient children with motor handicaps resulting from intracranial birth lesions, who were receiving muscle training, was compared with the improvement in a similar group not receiving such therapy. The orthopedic diagnoses were supplemented with psychological diagnoses. The patients receiving treatment were those who offered the most promise from the standpoint of age, mental ability, and type of handicap. Generally speaking, these were the younger patients and those with more severe disabilities. The muscle training program included a period of relaxation followed by a period of clinically prescribed assisted and unassisted movements. Improvement in social performance was evaluated by means of a performance schedule similar to the job analysis procedure for the education of low-grade feeble-minded subjects developed by Buhl (p. 29). Both the experimental and the control subjects were scored in respect to these abilities on the basis of reports and observations recorded for four successive six-month intervals.

It is not practicable to review this careful study in detail here except to note the results. In four out of six behavior categories the treatment group made a greater percentage of gains than did the non-treatment group, namely, in dressing, bathing, eating, and communication. In two categories the non-treatment group made the greater percentage of gains, namely, in locomotion and in control of excretory functions. In general the treatment group made 1.7 times as many gains as the non-treatment group. The significance of these results was discussed with regard for the numerous variables involved.

This study is significant as anticipating the present formulation of the Social Scale and also as revealing the practicability of the Scale at its amorphous stage for the evaluation of improvement under treatment procedures. The study also reveals the practicability of refinement of items into more minute steps than were subsequently encompassed in the Scale in its present form. The study did not succeed so well in particularizing the reasons for the improvements recorded as it did in actually revealing such improvement. It did, however, suggest the complex of variables involved in such evaluation.

f. (Social placement.)

(1) A study of the parole prospects of feeble-minded women of child-bearing age at the Laurelton (Pa.) State Village was reported by Marian A. Whitcomb (1945). The study is of special interest as revealing differences between social competence and social adjustment. The behavior of many of these S's reflected emotional and conduct disturbances, sexual and other delinquencies, and low degree of social motivation in addition to mental deficiency. It was recognized that the favorably disposed patients made better response to training than those unfavorably disposed, some of the latter seeming impervious to moral and academic training regardless of superficial progress.

The S's were 100 high-grade adult mental defectives and defective delinquents chosen at random from those girls in the institution whose IQ's (Form L) were from 60 to 70. The LA range was from 17 to 42 years, mean LA 26 years. The range of subsequent MA (Form M) was from 8 to 12 years inclusive, mean MA 10.3 years. Mean length of institutional residence was 6.6 years, range from 3 to 10+ years. Ninety per cent of the S's had histories of delinquencies and non-conformity prior to admission.

The S's were divided into four groups: (A) 49 girls considered as favorable parole prospects, (B) 32 girls considered as unfavorable prospects because of persistent unfavorable behavior, (C) 9 girls not suitable for release because of physical disabilities, and (D) 10 girls unsuitable for parole because of apathy, indolence or laziness.

All S's were examined with revised Stanford-Binet Form M, Wechsler-Bellevue, and Vineland Social Maturity Scale. All tests were administered by the same examiner under optimum conditions. The Social Maturity Scale was administered with the S as self-informant, but the usual method of examination was modified in that the interview was checked by the examiner's intimate knowledge of each girl's history, and the effect of institutional restriction was allowed for by reference to information in the case history. Apparently standard NO and F scores were not employed. Statistical item analysis was not made, but some descriptive information on item performances in the different groups was reported.

The mean Binet MA's for the four groups ranged from 10.3 to 10.5. The SA's were higher than the Form M MA's by the following amounts: Group A 4.1 years, B 3.7, C 2.3, and D 2.7. This superiority of SA over MA, while of some interest in itself, did not provide a significant discrimination between the two principal groups, namely, Group A (favorable parole prospects) and Group B (unfavorable parole prospects).

The author concluded that although many facilities and opportunities for training in social development had been offered these girls without discrimination, the groups responded differently to them, and that whereas intellectual and social achievement were preconditions of parole consideration the behavioral and emotional adjustment were the final determinants. From this we might infer that whereas the adjustment problems afforded a critical distinction between Group A and Group B while the social ages did not, such behavioral adjustment did not materially modify the social maturity scores. A further implication ensues, namely, that the measurement of social competence is relatively independent of the measurement of social adjustment and should not be substituted for it.

(2) The Scale was used by Doll and Longwell (1937) in a study of the extra-institutional placement of previously institutionalized mentally deficient subjects at the Newark (N. Y.) State School. Whereas most institutional programs are typically designed to prepare their wards for life in the institution rather than for return to the community or family, the Newark State School had experimented with different types of extra-institutional care.

The subjects included: (a) 77 resident wards in preparation at the parent school for extra-institutional placement (38 adolescent boys, 25 adolescent girls, and 14 adult girls), (b) 40 wards in branch colonies (8 adult boys in a farm colony and 32 adult girls in domestic service colonies), (c) 11 girls on parole in family domestic service, (d) 13 adult girls in boarding-home family care, and (e) 13 children (10 girls and 3 boys) in boarding-home family care. The informants were ward attendants at the institution, supervisors at the colonies, employers for those in independent domestic service, and boarding-home mothers for those in family care. The 11 girls on parole in domestic service were examined as self-informants as well as by their employers as informants. The influence of environmental limitation was examined and found not to significantly affect the results.

The results for the several groups were tabulated (medians and extreme deviations) for LA, MA, SA, IQ, SQ, SA-MA, and SQ-IQ. The specific differences were in accord with expectation and experience for the various types of placement. It was inferred that the use of the Social Maturity Scale was both practicable and advisable in assisting in the selection of institution wards for such extra-institutional purposes.

The analysis of item performances suggested that environmental restrictions were relaxed when the subjects' ability warranted such relaxation, but if not relaxed such concessions were not warranted. On the other hand, such improvements as were found in the less restricted environments were assumed to be effected within, rather than produced by, the environment. The study revealed not only the practical success of extra-institutional placement but also the value of the Scale in promoting and facilitating such placement.

(3) Another aspect of extra-institutional care was considered by Doll (1939a) with the assistance of Miss Longwell in a study of the boarding-home family care of wards of the Newark (N. Y.) State School. The study had three aspects:

(a) the evaluation of adult patients in boarding-home family care at Walworth (N. Y.) and near-by communities, (b) the evaluation of the foster parents, particularly the foster mothers, in whose homes these patients were cared for, and (c) the evaluation of a number of young borderline mental deficients in boarding-home family care at Newark and at Lyons (N. Y.).

(*a*) *Adult patients.* One hundred and two adult female patients were examined at Walworth and near-by communities (no male patients in such residence). The foster mothers were employed as informants, with the examinations divided about equally between Doll and Longwell. The LA range was from 20 to 65 years, mid-range 40 to 50 years, median LA 45 years. Twenty-three S's had more or less serious crippling (birth palsy, arthritis, infantile paralysis and fractures), 14 had extreme impairment of vision (some with total blindness), 4 had grave defects of hearing (some totally deaf), and 5 had extreme speech defect. Seventeen of the S's were or had been married; 21 had had illegitimate children, including 4 mothers who were married.

The SA range was found to be from 3 to 16 years, mid-range 7 to 11 years, median SA 8.8 years. Only 8 S's were above SA 12 years, and none as high as SA 18 years. The correlation between LA and SA was $r = .28$.

Following each examination the informant was asked to estimate the social competence of that S in terms of normal age development. The range of these estimated SA's was from 2 to 17 years, mid-range 6 to 12 years, median estimated SA 9.9 years. The correlation between estimated and measured SA was $r = .91$, with a median difference of 1.1 years in favor of estimated SA.

The 1916 Stanford-Binet MA's of these subjects showed a range from 3 to 13 years, mid-range 6 to 8 years, median MA 7.2 years. The correlation between MA and SA was $r = .62$. The median difference was 1.6 years in favor of SA.

Length of institutional residence for these S's prior to placement at Walworth was from 1 to 38 years, mid-range 10 to 25 years, median institutional residence 15.3 years. The correlation between length of school residence and SA was $r = .01$. Length of residence in family care was from .1 to 5.0 years, mid-range .7 to 2.5 years, median family care residence 2.2 years. The correlation between SA and length of residence in family care was $r = .17$.

Evaluation of item performances in terms of environmental restrictions showed a total of 68 +NO scores for these 102 patients, or an average of less than 2 such scores per individual. Only two items, Item 79 (Makes telephone calls) and Item 83 (Is left to care for self or others) showed any appreciable + NO frequency, and the comment of the informants in respect to these items clearly indicated the general need of such restriction. It was inferred that the environmental restrictions reflected rather than reduced the social competence of these S's. Environmental opportunity and stimulation were definitely favorable to self-expression. Nevertheless there was conspicuous absence of self-initiated activity in both recreational and occupational pursuits.

In general these results demonstrated: (a) the practicability of the method, (b) its value in the selection of subjects for such care, (c) the advantages of such care over institutional residence, (d) the lack of material improvement in social competence in this more favorable environment, (e) the range of social incompetence susceptible to family care management, and (f) the dependence of social competence on constitutional aptitudes and dispositions. In respect to the physical disabilities, the influence of physical handicap was most apparent in an arthritic wheel-chair patient with MA 11 and SA 5 whose potential SA score was estimated at less than SA 12 to 15 years by generous double scoring.

(*b*) *Foster parents.* Twenty-five foster mothers (and 5 of their husbands) were examined (by Doll) employing the Walworth Colony matron (administrative supervisor of the boarding homes) as informant. This was undertaken both to evaluate the social competence of such foster mothers, and to test the practicability of the Social Scale in such a realistic situation with presumably normal adults. The LA range of these foster mothers was from 35 to 65 years, mid-range 40 to 50 years, median LA 48 years. Their SA range was from 23 to 29 years, mid-range 25 to 28 years, median SA 27 years. The SA's were found to be not significantly affected by LA. Estimated SA's were also obtained and the correlation between estimated SA and measured SA was $r = .84$, median difference zero. The selectively slightly higher than average SA of these women (normative adult ceiling SA 25 years) was confirmed by evidence of superior schooling and premarital occupation. The range of school attainment was from sixth grade to college, median second-year high school. Occupational class was from housewife to professional occupations. Of the 5 husbands (foster fathers) four had SA's superior to their wives, with a mean difference of 1.3 years.

(*c*) *Juveniles.* Twenty-three juvenile subjects were examined (18 girls and 5 boys) in boarding-home family care at Newark and Lyons, N. Y. These children had been committed to the central institution as feeble-minded from various sources such as schools, courts, home for dependents and social welfare agencies, apparently on the basis of school failure and behavior problems with low psychometric scores, but in some instances with doubtful diagnoses of clinical feeble-mindedness. The LA range of these subjects was from 5 to 19 years, mid-range 11 to 15 years, median LA 13.6 years. The MA range (reported within two years prior to the study and adjusted to its date) was from 3 to 10 years, mid-range 6 to 9 years, median Binet MA 7.7 years. The SA range was from 5 to 18 years, mid-range 8 to 12 years, median SA 10.5 years. The median LA-SA retardation was 3.1 years. The difference between median MA and median SA was 2.8 years in favor of SA. Individual SA-MA differences were from .4 years to 7.3 years, mid-range 2 to 4 years, median 2.1 years. The IQ range was from 41 to 77, mid-range 56 to 65, median IQ 61. The SQ range was from 66 to 105, mid-range 70 to 90, median SQ 76. The difference between median IQ and median SQ was 15 points in favor of SQ. Individual SQ - IQ differences were from 4 to 45 points, mid-range 10 to 20, median 17. (Cf. Doll - McKay study to follow.)

Ten of these 23 S's had been examined with the Social Scale a year previously. The mean SQ at first examination was 84; the mean annual rate of SA progress for the year was 56, hinting at progressive retardation suggestive of ultimate mental deficiency.

The range of institutional residence prior to placement in family care was from .1 to 5.3 years, median institutional residence .5 years. The median length of residence in family care was 2.1 years with maximum residence of 4.1 years.

This juvenile group as a whole was principally in the pre-adolescent and early adolescent years, with presumptive diagnoses at borderline and dull-normal classification. The group as a whole seemed typical of children commonly seen in special classes or in the young bright groups of public institutions.

This study as a whole calls attention to the practicability of assessing family care programs for the social placement of some feeble-minded and the value of the Scale in the selection and follow-up of such subjects. The Scale was particularly useful in evaluating the social competence of the foster parents of such boarding homes.

g. (Special class subjects.)

Doll and McKay (1937) employed the Scale with public school children in special classes versus institutionalized feeble-minded children of like age, mental age and sex. This study was designed to evaluate differences in the selection and placement of such children and the possibly different effects of environmental stimulation. It was recognized that the special class children while representing mental and educational inferiority might not be clinically feeble-minded, whereas the institutional subjects were so diagnosed. The question was raised why some presumably feeble-minded children go to special classes whereas others go to public institutions, recognizing that only one-twentieth of the 2 per cent of school children commonly rated feeble-minded enter institutions before LA 20 years, even in those states which offer the most extensive institutional provision.

The subjects of the investigation were 38 children from three special classes in the public school system of Vineland-Landis Township, New Jersey, and 38 paired controls of the same sex, LA, and MA (and consequently the same IQ) in residence at the Vineland Training School. The S's were examined with the Social Scale employing parents and teachers as informants, and also having each child act as self-informant. These Scale results were not pooled, but certain significant differences were found though not specifically reported. The results reported were based on scores obtained from parents as informants. The LA range for both groups was approximately from LA 8 to 16 years, mean LA 12 years. The MA range (1916 Stanford) was from approximately 3 to 10 years, mean MA 7 years. The IQ range (14-year ceiling) was from approximately 40 to 80, mean IQ approximately 60.

For the institution group the SA range was from 3.0 to 10.0 years, mean SA 7.0. For the special class group the SA range was from 5.8 to 15.0 years, mean SA 9.4 years. The corresponding quotient scores were from SQ 25 to 81, mean SQ 57, for the institution group; and from SQ 59 to 96, mean SQ 78, for the special class group. The mean MA-SA difference for the institution group was .3 years in favor of MA, and for the special class group was 2.2 years in favor of SA. The mean IQ - SQ difference for the institution group was 4 points in favor of IQ, and for the special class group was 15 points in favor of SQ. The critical ratio for the SQ differences was 7.1. The IQ - SQ correlation for the institution subjects was $r = .68$, and for the special class subjects $r = .50$.

The special class children were not clinically appraised as feeble-minded, but rather as mentally retarded. However, from the evidence presented based on a consideration of IQ - SQ classes in 10-point intervals the hypothesis was suggested that: (1) when both SQ and IQ are below 70 the individual may be feeble-minded, (2) when both SQ and IQ are above 80 the individual may be normal even though dull-normal, and (3) that when either IQ or SQ is below 80 the individual may be borderline. It was recognized, however, that this hypothesis required verification from further diagnostic considerations.

Item analysis was based on the comparative per cents of passes for each item for each of the two groups as a whole. Of 61 items considered in the total range of examining, the special class group excelled in performance on 19 items by a comparative difference of at least 20 points in per cents of passes. This superiority was particularly noted on those items where self-direction or initiative appeared to be most heavily involved.

In seeking explanations of the special class superiority, differences were sought in the direction of selective influences and in the direction of environmental opportunity and restraint. It was noted that whereas the special class children were selected principally on the basis of retardation in intelligence, the institution children were selected for the additional factor of aggravated social incompetence. It was inferred that the SA differences between the two groups could be more plausibly attributed to native differences in predisposition (perhaps reinforced by *previous* environmental influences) than to relatively immediate environmental influences, and that these differences probably operated selectively in the special class vs. institutional placement.

h. (Social adequacy.)

Ordahl and associates (1944) used the Scale with high-grade institutionalized mental defectives, employing the method of self-informing. They sought "to inquire into the social competence of institution workers who had been committed as feeble-minded, but who fit into the institution program to become contributing members of this particular society." More particularly they were concerned with performance in relation to capacity, sex differences and the effects of environmental (institutional) regimentation.

The subjects consisted of 194 women and 122 men, LA's 14 to 65 years, mean LA 24 years, who were "detailed" to various institutional occupations. All patients resident over a period of 4 years at the Sonoma (California) State Home with 1916 Stanford-Binet MA's of 7 to 12.7 years, and IQ's (16-year ceiling) between 44 to 79 (mean MA 9.7 years, mean IQ 62), were included in the investigation. These S's were the type being prepared for parole or extra-institutional placement. Each S was examined as his own informant by one of the authors (Keyt). Full use was made of the several scoring possibilities. The validity of self-report was supplemented by additional information supplied by cottage attendants. Particular attention was paid to "F" scoring, which may have represented alleged rather than real success. Indeed, it was concluded that failure in the actual performance on such items may well have been one reason for commitment. Extended item analysis was made of the performances in relation to general level of capacity and also of the performances of male vs. female subjects.

The results are of more detailed interest than can feasibly be abstracted here. They are particularly illuminating with reference to the alleged or expected effects of institutional regimentation vs. actual performance if the capacity is present. It was implied that the results were useful as a means of evaluating reasons for commitment as well as plausibility of release. The results of item analyses were in general accord with those reported in this volume for the VTS subjects. The report is particularly informing as bearing on the practicability of the Scale by means of the self-informing procedure with mentally deficient subjects.

i. (Later maturity.)

Social age scores for mentally deficient S's of advanced LA were included in the data presented in Chapters 10 and 11. A more specific study of later maturity was reported by Doll (1942a) comparing mentally deficient with mentally normal subjects (cf. p. 484).

An immediate difficulty was noted in obtaining mentally deficient S's in the advanced years because of their relatively low life expectancy. This difficulty was increased for the lower degrees of mental deficiency because of their apparently earlier differential mortality.

Twelve male S's were found in the VTS population who had passed their fiftieth birthdays, each of whom had been resident at VTS for at least 30 years. Standard Social Scale examinations were available for these S's for their last five years of residence. Retrospective scores were obtained for 10-year LA intervals beginning at LA 15 (2 S's) and LA 25 (9 S's), based on adequate material available in the clinical life-history files.

The LA range (at the time of this study) was from 51 to 70 years, MA from 1.5 to 10.8 years, SA from 1.3 to 9.8 years. The successive SA's at 10-year LA intervals were reported individually. For the most part, it was apparent that the SA's had been well-sustained within the probable error of measurement. One S showed consistent increase from SA 8.0 at LA 25 to SA 9.7 at LA 53. Another increased from SA 5.8 at LA 25 to SA 7.5 at LA 55 and then decreased to SA 6.0 at LA 61. One decreased from SA 7.0 at 25 to SA 5.6 at LA 58. The author observed that: "From 50 to 70 years premonitory symptoms of decline in social competence are noted, but these are in the degree of activity rather than in the level or form of activity." This statement implied that although the item performances continued to satisfy the scoring requirements, they did so less "richly" (e.g., the S continued to "get about," but neither so much nor so far as formerly). This in turn suggests the "demergent" versus emergent (±) type of score, or the gradual loss versus the gradual gain in habitual item success (cf. p. 284).

2. *The mentally disturbed.*

One of the most valuable and interesting uses of the Scale is with mentally disturbed patients. By means of retrospective scoring, assuming adequate informants, it is possible to obtain a measure of social competence prior to the onset or prior to hospitalization or treatment. Such retrospective scoring affords timing of the onset of the disturbance as expressed in the effect on social competence, which is one of the important prodromal symptoms. If the patient is studied by the method of standard scoring soon after the onset of the disturbance, it is possible to measure the progressive reduction in social competence and its manifestations as the disturbance progresses, or at least as its effects become more overt. It is likewise possible to establish the degree of social competence by either retrospective or standard scoring methods at the time of hospitalization or treatment, and through successive examinations to evaluate the effect of hospitalization, or various forms of therapy, including spontaneous recovery. It is also possible to evaluate the effect of major and minor episodes in the course of the disturbance, and likewise to evaluate recovery in terms of prospect for release from hospitalization or discharge from treatment. Other interests lie in the direction of the differential effects on social competence of different forms and degrees of mental disturbance, and the amount and kind of restraint or supervision that may be necessary at various stages of the disturbance. These and many other important variables in mental hospital practice, or other disposition and treatment of mentally disturbed patients, afford an exceptionally fruitful field for investigation for which no comparable device is as yet available.

a. An exploratory study of these possibilities was undertaken by Edgar A. Doll and Eugene E. Doll (1940). It is impracticable to render an adequate report of this study because of the many variables investigated and the incomplete treatment of the data. Thirty-three mental patients were examined at the New Jersey State Hospital at Trenton, New Jersey. (See Case 19, p. 635 for a report on one of these patients.) The life age range was from mid-adolescence to senescent years. The practicability of the method was tentatively evaluated through the use of various informants, including relatives, hospital psychiatrists, nurses, ward attendants, and the patients themselves. (The self-informing method was found to provide a measure of insight by comparing results with other methods of examining.) The influence of environmental restrictions was studied from the standpoint of both administrative regimen and patient protection. Retrospective scores were obtained from precommitment to postcommitment stages. The practicability of the method was evaluated from the standpoint of the reliability of the informants in relation to the availability of their information.

While it is not feasible to express more than general comment on the outcome of this investigation, it is fair to say that in spite of the many difficulties encountered the Scale could be successfully employed with some satisfaction and could be used for many different purposes. The actual range of social competence was from low infancy level to the average adult ceiling. Aside from the total scores, the results from item performance were particularly significant as revealing discrepant and aberrant behavior and as indicating the progressive course of deterioration and recovery. The study clearly indicated the desirability of the use of such a standardized and quantitative measure to supplement the subjective procedures of neuropsychiatric examination, and particularly for the obtaining of objective evidence on the effects of various forms of treatment. The value of the Scale was particularly apparent when used with the relatives of patients as informants, because of the insight gained by these relatives during the course of the examination. Another consequence was the tonic effect on hospital personnel, patients, and relatives accruing from the use of this type of instrument in providing a better understanding of the patient and a more insightful attitude toward his welfare. This was reflected in better appreciation of the patients' assets and limitations and a realistic expectation of response to environmental regimen (cf. score-card p. 32).

3. *Convulsive seizures.*

a. The Scale was used in a study of institutionalized young female epileptics by Alice W. Goodman (1940). Sixty-three girls in one cottage at the New Jersey State Village for Epileptics, Skillman, N. J., were examined using two cottage attendants as informants. The LA range was from 7 to 21 years, mid-range 11 to 17 years, median LA 15.3 years. The range of obtained SA's was from 1.5 to 13.2 years, mid-range 4 to 9 years, median SA 6.7 years. The correlation between SA and LA was $r = .44$. No attempt was made to determine how much of the social retardation was due to the epilepsy itself, or how much to accompanying mental handicap (epilepsy is sometimes accompanied by mental deficiency and sometimes by mental deterioration).

In addition to these gross data the study was concerned with the nature of the social competence manifested by institutionalized epileptics. This interest was pursued through item analysis. These results afforded a description of this population in specific behavioral terms. The analysis also dealt with the influence of environmental regimen and found less than one per cent of the total number of scores affected by lack of opportunity. It was inferred that environmental restraints were made necessary by the disabilities of these patients rather than that the disabilities were artifacts of restraint.

b. In a further study Goodman (1941) reported three case studies of epilepsy in which the Social Scale was used in relation to modifications of behavior. In the first patient the Social Scale revealed progressive improvement associated with regimen and therapy; in the second the Scale was used to reveal quantitative measurement of deterioration; and in the third the Scale was used to measure alterations in social competence in relation to disturbed periods. These data were presented with reference to the total case histories. They illustrated the value of the Scale in measuring changes in social competence under different circumstances.

VII. EDUCATIONAL APPLICATIONS

Several popular and professional publications have called attention to the import of the Social Scale in the fields of child development, education, and training (e.g., Bradway, 1939; Doll, 1935c, 1937a, 1938, 1940c, 1948). We shall note here only a few representative references on educational philosophy, supplemented by some of those dealing with specific quantitative investigations.

1. *Principles and practice.*

a. Doll (1946) presented the Scale as a concrete means for implementing the maturational philosophy of education. In a memorial tribute to the influence of Pestalozzi on modern educational reform, this was suggested as one means of resolving the long-standing conflict between formalism and naturalism as contrasted schools of educational thought and practice. The point of view was elaborated that "education is at its best when it capitalizes the psychological moments for learning as evidenced in the natural processes of individual maturation."

b. Doll (1942b) emphasized the value of the Scale as a basis for classification and training, employing data from the normative and feeble-minded standardizations to emphasize the relation of instruction to maturation. Representative item maturation curves for normal versus feeble-minded subjects were presented to indicate the psychological moments before which instruction is futile, after which it may be irrelevant or unnecessary, and during which it most effectively capitalizes development. The Scale was presented as affording a basic educational psychology oriented toward social objectives.

c. In another article (Doll, 1937c) attention was called to the responsibility of the institution as an educational agency for fostering social competence. It was suggested that the institutional environment, while safeguarding the individual from the standpoint of his behavior limitations, has responsibility for concentrating instruction at the emergent level of maturational behavior, and that the Social Maturity Scale is definitive in respect to certain behavioral performances. From data gathered in a number of surveys of institutions of different types (data not reported) it was apparent that the typical institution tends to (a) restrict its wards in self-direction and locomotion, (b) stimulate them in self-help and occupational usefulness, (c) urge them in the lower degrees of communication and socialization, and (d) limit them in the higher levels of communication and socialization (as evident from analyses of "NO" and "F" scores). It was concluded that the frontiers of individual incompetence should be regarded as points of departure for further training, and that social stimulation should be directed toward the optimum capitalization of individual maturation in anticipation of each ward's future status.

d. In a popular booklet (Doll, 1939c) in the area of parent-child relation the philosophy and content of the Scale were presented from a standpoint of parent information and attitudes. Here again the significance of maturation in relation to expectation of performance was emphasized in the realistic terms of the normative standardization of item performances throughout the life span, with emphasis on the relation of instruction to the direction and timing of behavioral maturation and the mental hygiene of child development.

e. The overall philosophy of genetic maturation in social functions as a basis for public education was urged by Otness (1941). Taking the concept and content of the Social Scale as a point of departure, the timing and purposes of instruction were emphasized with reference to successive age levels and the major categories of social desirabilities.

2. *Grade school children.*

a. Louttit and Watson (1941) employed the Scale with 120 children entering the first grades of four city schools at Bloomington, Indiana. All S's were examined by the junior author using the pupils as their own informants. The children also received Binet examinations within two months of the use of the Social Scale. The SQ's were significant in relation to the socio-economic character of the several schools (as revealed by paternal occupation), and corresponded to the IQ school differences. This conclusion was supported by a study of the mean SQ's when pooled for all S's according to paternal occupations instead of by school groups. No comment was made whether this difference was selective or causative, but the implication favored a selective interpretation. The mean SQ of the boys was 6 points higher than that of the girls, with a critical ratio of 2.6. A correlation of $r = .38$ was found between SQ and IQ for 62 S's (LA range 6.0 to 7.3 years, IQ range 60 to 129, SQ range 55 to 150). This was found to be generally comparable to the similar correlations reported for other groups of the same range. (It should be noted that the discrepancies in correlation coefficients reported throughout this chapter have seldom been reduced to a comparable basis in terms of a common standard error of estimate. Obviously these coefficients are affected by the spreads of the distributions.)

b. Bradway (1938) reported a statistical analysis of the results obtained by Dr. Roy F. Street in the examination of 310 children at the Ann J. Kellogg School, Battle Creek, Michigan. This school provided within-grade classification for children according to individual abilities, as well as for several types of special classes. The original data, gathered with Form A of the Scale, were converted to Form B norms. The pupils had also been examined with the Binet scale and the Pintner Pupil Portrait Test.

The detailed statistics showed distinctive returns for the retarded, regular, and gifted groups in relation to grade placement, and also for the remedial and open-air classes by grades (specific data too detailed for presentation here). The mean SA's of the retarded pupils at each school grade were 3 years below those for gifted. And although the progression in mean LA was consistent at about one year per grade, the SA's of the slow and retarded pupils did not advance from grades 4 to 6. It was also observed that SQ was superior to IQ at the lower IQ range, but inferior at the upper range. The correlation between SA and MA was $r = .73$, and the standard error of estimate (1.4) for this coefficient was found comparable to that previously reported for feeble-minded comparisons. A raw correlation of $r = .36$ was found between SQ and score on the Pintner Pupil Portrait Test. This result was interpreted as indicating a slight relation between relative social maturity and degree of adjustment. (The consistency of the results in this investigation affords an indirect confirmation of the value of the method, while the results themselves are revealing in relation to different types of special classes and their respective purposes.)

c. The Scale was used by Goodman and Little (1942) as one item in a study of the corrective teaching of grade-school pupil reading disabilities. Sixty-three pupils (47 male, 16 female) from the Glassboro (N. J.) Reading Clinic were examined for overall clinical analysis of reading disability for corrective instruction. The LA range was from 6 to 15 years, mid-range 8 to 11 years, median LA 9.2 years, mean LA 10.0 years. The MA range was from 6 to 14 years, mid-range 8 to 10 years, median MA 9.1 years, mean MA 9.3 years. The SA range was from 6.3 to 15.5 years, mid-range 7 to 11 years, median SA 8.8 years, mean SA 9.5 years. The correlation between LA and SA was $r = .99$, between LA and MA was $r = .85$ and between SA and MA was $r = .80$. The median SA-MA difference was .3 years in favor of MA; the mean SA-MA difference was .2 years in favor of SA. The correlation between LA and achievement rate under remedial instruction was $r = .27$, for MA (correspondingly) was $r = .39$, and for SA was $r = .28$. In respect to reading disability it was concluded that the population sample was normal (average) in regard to both mental and social competence. The study did not deal with the influence of reading disability on the communication items of the Scale and the consequent relation of such disability to the measurement of social competence. However, it is to be inferred that the scatter of these items throughout the Scale did not materially influence the total scores at any one SA level.

3. *High school students.*

Powell and Laslett (1941) applied the Scale to 100 members of the three upper classes in a small high school in order (1) to compare their social development with similar pupils elsewhere and (2) to find pertinent material on which to provide for better personality development in the pupils. The Scale was used in conjunction with the Margaret Hayes "Personality Rating Scale for the Adolescent in School." The scores for both scales were based on the pooled judgments of three people familiar with the pupils for several years.

The LA range was from 15 to 20 years, mean LA 17. The MA range (Otis Self-Administering) was from 14 to 20 years, mean Otis MA 17. The corresponding IQ range was from 82 to 123, mean Otis IQ 101.62, ± 9.52.

The mean SQ for all S's was 98.75, ± 8.14 (range not stated), for 57 boys was 100.37, ± 6.4, and for 43 girls was

99.32, ± 1.8. (Note statistical discrepancies. The SD for the girls suggests possible typographical error or error of computation.)

The IQ's and SQ's were "quite parallel." This was not the case for IQ and Hayes scores, or for Hayes and Social Scale scores. Pupils with low scores came "almost uniformly" from poor home environments.

It was observed that following the use of these scales the adults working with the pupils became more analytical and objective in pupil counseling. The pupils, likewise, paid more serious attention to their behavior. A positive counseling effect was obtained with low-score pupils by acquainting them with their own scores and by obtaining self-ratings. Social Scale requirements beyond Item 98 were considered in relation to local educational objectives.

4. *Special education.*

a. Emphasizing the differences in social versus scholastic objectives of education, Meta Anderson (1937) reported a study of the use of the Scale in the special education classes of three different schools at Newark, New Jersey.

Two hundred fifty pupils from the Montgomery Binet School, with LA's above 12 years (principally from 14 to 16 years), yielded a distribution of SQ's from 50 to 120, and of IQ's from 40 to 100. The median SQ was 86, median IQ 66.

Sixty children in the primary Binet classes at the Newton Street Primary School, with LA's under 12 years, yielded SQ's from 20 to 120, and IQ's from 50 to 90. The median SQ was 92, median IQ 65.

One hundred eighty-two boys at the McKinley Junior High School (LA not stated) yielded SQ's from 70 to 120, and IQ's from 60 to 150. The median SQ was 93, median IQ 92.

The data were further reported in terms of percentages of incidence at different SQ, IQ, and combined SQ-IQ cutting scores. At the Montgomery School 70 per cent of the pupils had IQ's below 70, but only 9 per cent had SQ's below 70; at the Newton Street School the corresponding per cents were 73 and 28; at the McKinley School they were 2 and 0. The median IQ's were 66, 65 and 92, respectively, while the corresponding median SQ's were 86, 92 and 93. This was interpreted to mean that in these special classes there was "a promising prospect for social salvage of these pupils through education designed to foster *social* competence where the intelligence is too limited to foster *scholastic* competence (italics ours)." It was concluded that the social objectives of education should not be subordinated to the scholastic objectives, particularly in the case of intellectually handicapped pupils of favorable social aptitudes.

b. A special number of the *Binet Review* (a publication devoted to the interests of teachers of Binet Schools at Newark, New Jersey) was devoted to the concept of social maturity in relation to special education and the practicability of the Scale in affording both a program of instruction and standards of achievement in this area of social education.

(1) In a Foreword, Anderson (1939) stated that: "Social competence, not merely academic achievement, is the aim of our special education program. Education for social competence does not exclude academic training. It is not, however, dependent on it." Noting that the Vineland Social Maturity Scale had already revealed the importance of social competence in addition to scholastic achievement in all divisions of the educational system, Anderson advocated the use of the Scale as a basic philosophy and method of procedure in the field of special education.

(2) Elizabeth M. Kelly (1939) reported the results of first endeavors with 250 boys and girls in special classes compared with 182 boys from a junior high school in the same system (Newark, N. J.). The self-informing procedure was used and found reliable. The range of IQ's for the special class group was from 49 to 99, and for the junior high school group was from 60 to 149. Confining the study to boys only, and to the LA range of 13 to 15 years inclusive, results were reported for the groups as wholes, and for pupils working intermittently versus those not working intermittently. Detailed results on item performance were presented. A definitive program of educational procedures was designed in order to promote improvement in social performance.

The study was then pursued in the direction of children in other special classes, namely classes for the mentally retarded, adjustment classes, classes for crippled children, and sight-conservation groups. In this part of the study item data were reported by LA year-intervals for 500 mentally retarded pupils, 71 adjustment pupils in School A, 50 adjustment pupils in School W, 24 crippled children, and 18 pupils in a sight-conservation class.

From this extensive analysis the author concluded: (1) that children of normal IQ are not necessarily socially mature, and that children within the lower IQ range are not necessarily socially immature, (2) that these results make it necessary to recognize social maturation as an aid to school classification, (3) that item failures furnish important leads for instruction, (4) that physical, intellectual or emotional handicaps jeopardize social competence and should be specifically neutralized educationally, (5) that guidance in both academic and occupational programs should provide healthy stimulation for the later careers of children, and (6) that "A latent capacity for social maturity in adult life may be best induced through the projection of a thoughtful vocational program in the secondary as well as the elementary schools."

(3) Reports on overall data, item analysis, and the specific uses of the Scale for purposes of instruction were further reported by Pluhar (1939) for general remedial work with normal children, by Trubin (1939) for individual pupils, and by Reingold (1939) for concrete content. Their observations were in general accord with those previously noted. (Other studies and experience in the use of the Scale at Newark, N. J., over the succeeding years, have added materially to the above reports and extended their implications.)

c. Kelly (1941) urged the value of the Scale as an outline for training in social competence with reference to crippled children. From application of the Scale to 78 orthopedic pupils at the Branch Brook School, Newark, N. J., the following IQ-SQ comparisons were reported: 46 pupils had SQ's from 5 to 57 points below their IQ's, 15 had SQ's from 2 to 5 points below IQ, 7 were 2 to 5 points above IQ, 9 were from 5 to 16 points above IQ, one had equivalence of SQ and IQ. While recognizing the various limiting physical handicaps in these pupils it was concluded that after allowance was made for the particular handicaps the pupils individually still fell short of optimum expectation. These results were used as the basis for a program of systematic instruction in two major categories of the Scale, namely, Self-Help-Eating and Socialization. The author then detailed the nature of the instruction resorted to in relation to striving for improvement in performance on the items of these categories and the success with which this was accomplished. At first the teachers denied the inaptitudes of these pupils, or explained them in terms of the physical handicaps. But as the program progressed the teachers became aware that the difficulties really existed, and could within limits be overcome by special training. This training was emphasized in directions where previous opportunities had not been adequately capitalized or where the impact of the environment had been "cushioned" for these pupils. It was anticipated that an objectively realistic treatment and training program would overcome the limitations ensuing from the sentimental protection of these pupils by encouraging them more candidly to accept their social responsibilities. It was further anticipated that such training would capitalize inherent maturation and foster its expression.

d. Providence K. Gambaro (1944) used the Scale with 347 educationally inferior subjects of relatively poor socio-economic selection. These included 286 subjects from a prevocational school for boys, and 61 girls from a Binet school center. Both schools were located in the poorest socio-economic area of a large city. Eighteen per cent were Negroes; 36 per cent came from broken homes. Parental occupations were in the non-professional classes with two-thirds in relatively unskilled occupations. The results were analyzed in three groups, 171 boys aged 14 to 16 years, 115 boys aged 12 to 14 years, 61 girls aged 14 to 16 years.

The subjects were examined with the Revised Stanford-Binet (Form L), Stanford Achievement, and Vineland Social Maturity Scale. The results were analyzed for inter-relationships as to central tendencies and correlations. A general review of these results showed SA from 2 to 4 years above MA, and SQ from 14 to 25 points above IQ, confirming other studies showing a tendency for social scores to exceed mental scores where the mental scores are low.

The results as to type of home and number of siblings showed no significant differences (mean SQ 98 for 61 boys with 4 to 12 siblings, and mean SQ 97 for 54 boys with less than 4 siblings; mean SQ 98 for 41 boys from broken homes, and mean SQ 94 for 74 boys whose family life was apparently normal).

The SQ's for 69 Negro boys ranged from 69 to 123, mean SQ 97. The range for 48 white boys was from 74 to 148, mean SQ 100. The mean SQ Negro-white difference was 3 points, CR = 1.4.

The inter-correlation of paired variables was uniformly low, which is explained in part by the narrow age range of the subjects. The highest correlations were found between social age and reading age, and these were uniformly higher than those for mental age and reading age.

It was inferred that social competence is an important factor in school placement, and implied that the Social Scale was a useful means for assisting in such classification. Emphasis was attached to the comparability of the results from this investigation as compared with other studies where the population samples were similar.

VIII. LITERARY EMPLOYMENT

The field of literary production offers intriguing possibilities for employing the Scale with illuminating ramifications. While some preliminary exploration of these possibilities has been attempted at the Vineland Laboratory, no systematic study has yet been reported. This passage deals with these possibilities only speculatively and with casual emphasis on the preliminary work already done.

The opportunities for such application are limited only by the kind of information that may be available in such fields as biography, autobiography, classical literature, drama, novels, popular fiction, collateral school reading. The Scale affords an instrument for estimating the success with which literary characters are portrayed in terms of normative psychological maturation and aptitudes. It also offers direct assistance to authors in providing frameworks within which the individuality of such characters may be elaborated.

For example, in the field of biography one thinks of such versatile characters as a da Vinci or a Michelangelo, and the possibility of understanding such men more clearly in terms of a genetic outline of their life-history attainments. Or one thinks of such works as Terman's biographical studies of genius in which the retrospective estimates of precocious intelligence were indirectly inferred from attainment in the realm of social competence (suggesting that the Social Scale affords a more immediate instrument for appraising the attainments of such outstanding personalities). Likewise Francis Galton's "Hereditary Genius," or Frederick Adams Woods' "Mental and Moral Heredity in Royalty" (to mention only two early representative classics in this field) might be reconstructed with quantitative (and maturational) data available to the historical analyst.

At the other extreme, from a review of Itard's report on the Wild Boy of Aveyron (Itard, 1801, 1806) one is able to infer with some assurance that Victor's development was at about the maturational level of 4 to 5 years after the optimum benefits of Itard's system of physiological education had been achieved, an increase from an apparent initial level of about 2 to 3 years. From the Social Scale one sees also the limitations of Itard's clinical description of Victor's attainments in terms of the particular performances associated with maturational progress and the directions in which training might have been more specifically instituted. To this may be added recent studies of idiots-savant (e.g., by Roberts, 1945, and by Scheerer, Rothman and Goldstein, 1945, and of "wolf children" (e.g., Gesell, 1940, or Singh and Zingg, 1942).

In this vein, one might review such a book as Helen MacMurchy's "The Almosts," which presents a collection of mentally deficient characters gathered from the general literature. Or one might "scientifically" explore the voluminous works of Dickens whose extraordinary character portrayals afford unlimited material. Likewise one thinks of more recent works on the order of Booth Tarkington, or such antecedent popular classics as Louisa M. Alcott's "Little Men" and "Little Women," or Margaret Sidney's "Five Little Peppers and How They Grew," or Alice Hegan Rice's "Mrs. Wiggs of the Cabbage Patch."

1. *Fiction, cultures, biography.*

a. Preliminary exploration of such possibilities was begun at Vineland by Ruth Borneman (1940), but the results were not completed for publication. Specifically, Miss Borneman undertook to evaluate ten characters from Henry Bellamann's "Kings Row," which affords an unusually favorable portrayal of characters in process of maturation and with various forms of disability including crippling, mental retardation, and mental abnormality. The lead character in this book, Paris Mitchell, was found to have a social age of approximately 12 years at LA 12 to 15 years, SA 21 years at LA 17 to 20 years, and SA 28 years at LA 25 to 30. This suggests some slight underestimation in the portrayal of a character revealing a general aura of SQ about 120, but might be interpreted as reflecting the undercapitalization of superior mental age for purposes of social competence. The portrayal of Paris' friend, Drake McHugh, revealed SA about 11 at about LA 15 years (which suggests underportrayal), SA about 19 at about LA 20 years (which likewise suggests underportrayal but not so markedly), and SA about 7 at LA 28 years (following loss of legs with consequent loss of purpose and ambition), but with subsequent SA about

26 years with double-scoring allowance for the physical handicap and the readjustment in life purposes following other life incidents. Drake's wife was scored SA 27 years at LA 32 years, which is in fairly close accord with the estimate from overall aura. Vera Lichinsky, the concert violinist, was scored SA 25 years at about LA 25 years (suggesting underportrayal), and SA 18 years following mental breakdown. Benny Singer, a mentally deficient character in the novel, was scored SA 9 years at LA about 20 years, and SA about 10 years, ten years later. Madame Von Eln, the aristocratic grandmother, was scored SA 28 years in late adult prime.

Similar scores, generally speaking, were found for other characters in this book. From the information available for Social Scale purposes, the objective information on these characters yielded scores which were mildly below general estimates of the characters from the aura of the author's descriptions. This inference should hardly be interpreted as a criticism of the author's character portrayal, but is offered here only to note that the concrete social attainments of these characters are somewhat below the normative standards that one would expect to accompany the author's apparent intentions. What is of more interest here is that the Social Scale affords a means of actually appraising the skill with which authors do succeed in portraying life stages in terms of scientific standards. (We acknowledge a gracious and helpful correspondence with Mr. Bellamann relating to this study.)

b. Miss Borneman (1940) tentatively explored other areas of literary production with promising effect. In one instance a character referred to as feeble-minded was interpreted as more probably psychopathic (on the basis of the nature and wide scatter of the behavior portrayed). In another instance an author revealed exceptionally insightful awareness of advanced normative adolescent development and behavior. Evaluation of a graded series of reading books for supplementary grade school readings indicated markedly deficient author-awareness of normative qualities in the principal characters. In a specific instance requiring the evaluation of a manuscript on idiocy it was discovered that the author had inadvertently omitted one entire area of behavior as revealed by Scale evaluation but had covered other areas with precision and clarity.

Considering the vast amount and variety of material available, it is possible here to suggest only these few illustrative possibilities. They may be extended to particular fields, such as the social novels of Steinbeck, or to novels such as those of Pearl Buck whose settings are in foreign cultures, or to novels which extend over several generations such as Hervé Allen's "Anthony Adverse," or to culturally modified settings as in John Sedges' "The Townsman." The technique is similarly applicable to such works as Clifford Beer's "The Mind That Found Itself" and other works on mental deterioration and recovery, to reports of studies in cultural anthropology, both tribal and individual, to dramatic productions whose *dramatis personae* may be in or out of psychological character. Further elaboration of such manifold possibilities will occur to the imaginative reader.

c. Eugene E. Doll (1939) "tested" the Scale in three biographical studies of musical genius. From material in Frederick J. Crowest's "Beethoven" he estimated an SA of 28.5 years at LA about 50 years. From Csse. Angéle Potocka's biography of Leschetizky he obtained SA 29+ years at LA 50+. From Karl Storck's "The Letters of Robert Schumann" (translated by Hannah Bryant) he established SA 23 years at LA 18-21 years. The social quotients in these instances were respectively 114, 116+ and 112. The detailed accuracy of these scores is not so important as the promising possibilities of using biographical and autobiographical literature for the translation of achievement into quantitative terms. This endeavor sheds light on the Scale itself and suggests criteria for formulating standards of attainment at the superior adult level of success.

IX. ADAPTATIONS OF THE SCALE

It is fitting to close this chapter with brief comment on some preliminary work designed to adapt the Scale in other forms for special purposes.

1. *Abbreviation and expansion.*

a. An effort was made during the recent war to employ the outline of items in the Scale as a means of evaluating the material of Form 20 of the AGO Personnel Records as a summary of the overall social competence of enlisted men in the U. S. Army. Similar work was done in preparing a brief form of the Scale for the rapid evaluation of the social competence of enlisted men at induction stations and classification centers, especially in the range of borderline social competence.

b. The Scale has also been used for appraising personal data as contained in various application forms, e.g., for admittance to institutions, or matriculation in private schools. Indeed, some such application forms have been specifically designed to incorporate information which could be evaluated within the normative framework of the Social Scale. In preparing such forms the data desired may be concentrated for a particular age range, or competence level, or spread over an extensive range, according to the purposes to be served.

c. To use the Scale in abbreviated form several courses are possible:

(1.) A single category (see Table E, p. 577) might be used which covers the major age ranges with the smallest number of gaps, e.g., the occupational category.

(2.) A specific categorical area might be used for purposes of immediate clinical concern, e.g., the locomotion category with crippled S's.

(3.) Two categories could be combined which cover both ends of the Scale, e.g., self-direction with locomotion, or self-direction with dressing.

(4.) Those categories or items might be used which seem best to express the central purpose of the Scale, namely the measurement of self-direction, self-sufficiency and social adequacy.

(5.) Representative items from all categories might be selected which are deemed most suitable as indicated by optimal criteria (e.g., item content, item variability, item validity, examining practicability, scoring certainty, and so forth), restricting the number to perhaps one or two items at each period.

As a suggestion for abbreviation in terms of this last procedure, Table D was derived from the combined judgment of six experienced examiners of the Vineland Research Staff (1942). This brief scale has been neither standardized nor validated, but might be useful for rapid exploratory examining as a range-finder.

TABLE D

ILLUSTRATIVE ABBREVIATED SCALE

				Mean LA
1.	(6)	SHG	Reaches for nearby objects.	.35
2.	(17)	C	Follows simple instructions.	.93
3.	(29)	L	Goes about house or yard.	1.63
4.	(41)	SHG	Avoids simple hazards.	2.85
5.	(48)	O	Helps at little household tasks.	3.55
6.	(53)	L	Goes about neighborhood unattended.	4.70
7.	(61)	L	Goes to school unattended.	5.83
8.	(65)	SHD	Goes to bed unassisted.	6.75
9.	(69)	S	Participates in pre-adolescent play.	8.28
10.	(72)	O	Does routine household tasks.	8.53
11.	(77)	L	Goes about home town freely.	9.43
12.	(80)	O	Does small remunerative work.	10.90
13.	(83)	SD	Is left to care for self or others.	11.45
14.	(89)	O	Performs responsible routine chores.	14.65
15.	(93)	SD	Goes out unsupervised daytime.	16.13
16.	(101)	SD	Assumes personal responsibility.	20.52
17.	(105)	SD	Provides for future.	25+
18.	(109)	S	Inspires confidence.	25+
19.	(116)	O	Creates own opportunities.	25+

d. Considerable correspondence has been exchanged with various workers designed to expand the Scale in the adolescent range where the discriminative progression is not altogether satisfactory. Still other preliminary work has been done in the diversification of the adult items from the standpoint of breaking down the rather gross present formulations into more detailed expressions of attainment. The abortive nature of these efforts hardly warrants special review here except to indicate that these possibilities have already been anticipated.

e. In anticipation of these possibilities Table E is presented to display the distribution of items by categories and by age levels. This profile arrangement of the Scale was designed by Dr. Lester N. Myer, Chief of the Division of Special Education, Department of Public Instruction, Harrisburg, Pennsylvania, for use with special class children. As a simplified record blank it may be used to indicate the items passed, without recording the information on which the scoring is based. It could be adapted as a progressive record blank by arranging the items in such a manner as to provide for successive scorings for any number of re-examinations. In this way overall individual maturation would be readily displayed from one examination to another both by year level and by categories. Likewise the deviations from one examination to another would be immediately evident.

TABLE E

PROFILE: VINELAND SOCIAL MATURITY SCALE

Years	SELF-HELP			Self-Direction	Communication	Socialization	Locomotion	Occupation	No. of Items
	General	Dressing	Eating						
plus 25				112		115, 117 109, 110		116 111,13,14 106, 7, 8	12
25 to 20				102, 105		103, 104			4
20 to 18				100, 101 97, 99			96	98	6
18 to 15				93, 94, 95	90, 91		92		6
15 to 12		86		87		85, 88		89	5
12 to 11				83	84			82	3
11 to 10					81 78, 79			80	4
10 to 9			75	76			77		3
9 to 8		74			73			71, 72	4
8 to 7	66	70	67			68, 69			5
7 to 6		64, 65	62		63				4
6 to 5				60	58	59	61	57	5
5 to 4	51	52, 54				56	53	55	6
4 to 3		47, 50				46, 49	45	48	6
3 to 2	35, 41	37, 40, 42	38, 39		44			36, 43	10
2 to 1	23, 26	21	30, 33 20, 25, 28		31, 34	27	18, 29, 32	19, 22, 24	17
1 to 0	15 8, 9, 13 2, 3, 5, 6		11, 16		1, 10, 17	4, 14	12	7	17

The total number of items per age level is indicated in the final column of Table E. These range from 10 to 17 for each of the first three years of life, and from 3 to 6 for the other age periods, except for LA 25+ where 12 items represent the "tail" or post-ceiling range. We have elsewhere (p. 53) commented on the desirability, and also the difficulties, of "evening out" the number of items per age period.

2. *Group form.*

Ellis Weitzman (1940)* proposed a group form of the Scale adapted for the upper adolescent and early adult range, which was later published (Weitzman, 1941) with directions, norms and supporting data. Weitzman applied this group form of the Scale to 517 college students, 152 employed persons, 101 unemployed youths, and 129 CCC enrollees. The results were presented in three age categories, namely, LA 16 to 18 years inclusive, LA 19 to 20 years, and LA 21 to 24 years. Mean scores and standard deviations were reported for the several groups as well as critical ratios for the differences between paired groups. It was found that: (1) the employed persons were superior to the college students, but not by statistically significant amounts, (2) the college students were superior to the unemployed subjects by significant amounts, (3) the college students showed a slightly significant superiority over the CCC groups, (4) the employed youth showed a significant superiority over the unemployed and CCC groups, (5) the CCC group showed a significant superiority over the unemployed group. It was concluded that a group method of applying the Scale was practicable, reliable and valid.

It is inevitable that further work will lead not only to improved standardization and validation of the original Scale and its modified procedures, but also to various other adaptations. We have already suggested some of the precautions to be observed in such endeavors, such as representativeness of population samples, adequacy of examiner, care in formulation and definition, thoroughness and objectivity of examining in relation to information obtained from the informant, range of abilities, and the further exploration of variables involved with different types of subjects.

In respect to such adaptations it is to be anticipated that the group form proposed by Weitzman will be much improved. It is further anticipated that the adequacy of the Scale will be improved with reference to the age ranges in which the present Scale offers too few or too generalized items. Consequently expansion of the Scale may be accomplished by the fractioning of present items or by refinements of item definition and scoring.

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* The more complete report (Weitzman, 1944) came to our attention too late to include here.

X. SUMMARY

The material of this chapter has been developed as empirical and experimental evidence on the practicability, reliability and validity of the Scale, in many different areas of application, with a wide variety of subjects, and by a large number of different investigators. While the results of such applications have yielded information of marked significance, our major interest here has been concentrated on the practicability and ramified applicability of the Scale as an instrument for scientific investigation.

We have included all pertinent references available to us as of March, 1949. We express regret at our lack of awareness of such other investigations as may have escaped our attention.

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14

Clinical Integration

> *Behavior patterns are not catastrophic, sudden, unrelated, induced by parental ambition. They are adumbrations, expectations, culminations, dropped from the fingers of yesterday. The child grows up slowly, consistently, quietly. Nature, in its steady stretch toward maturation, is not pushed from without so much as pulled from within. Nature does not see the goal with opera glasses and then push up hill to reach it. Nature is fertile in pauses, creative in silences, and would not attempt to change a demure violet into a stately lily just to be in the mode.* — Beatrice Chandler Gesell.

Principles. The evaluation of results obtained with any human measurement scale must consider such variables as age, sex, social status, race, color, environment, intelligence, personality, mental or physical handicaps, and so on, through a long list. The relation of some of these influences to scores obtained with this Scale has been examined in previous chapters. Such studies as those reviewed in the previous chapter furnish empirical bases for the interpretation of Scale scores in terms of single or multiple terms. Research designed to elucidate the pattern of characteristics when these "addends" (Toops, 1948) are variously combined is finitely limited by the many patterns which result from the combination of even a few factors.

In the clinical consideration of Scale scores the clinician must therefore use his utmost skill in making the most plausible interpretation of any particular combination of variables that is for him practicable. For example, if a subject is male, young, foreign-born, mentally sub-average, and deaf, it is readily seen that the differential values obtained from the validation of any of these considerations taken singly must influence symptom-complex evaluation. The outcome in the clinical use of this Scale will therefore depend upon alert resourcefulness in recognizing and correlating the most relevant details present in a given case.

A large number of industrial products consist only of carbon and hydrogen compounds. Not only the relative proportions of these elements, but particularly their molecular arrangement, yield the unique properties of widely different synthetic materials (such as plastics). Similarly, individual differences in human constitution, while depending upon essentially the same constituents, and sometimes even of similar proportions, may be significantly determined by the pattern arrangement of elements. As the elements in such a system increase arithmetically, the possible permutations and combinations produce such a large variety of individual differences that apparently no two persons, not even identical twins, are exactly alike. In short, the whole is something more than the mere sum of its parts. Hence a person is not to be appraised in terms of the specific constituents to which his body might be reduced, nor in terms of the separate functional attributes which might yield to objective appraisal.

For clinical purposes this scale is more than just another item in a psychometric battery. It provides the descriptive background for a preliminary orientation toward the basic problems of social competence and social adjustment which underlie all casework (Doll, 1940). The use of this scale as a point of departure in the clinical syllabus is therefore one of its greatest advantages. If adequately used, it will go far toward simplifying casework analysis. Other devices may then be considered in better perspective or relevance.

The illustrative examinations in Chapter 8, designed to demonstrate the technique of the Scale as a clinical examining procedure, were presented with detailed comment on administration, scoring, and interpretation, but with only limited orientation to the total clinical settings. We now present a series of longitudinal case-studies designed to illustrate the integration of the Scale in overall differential mental diagnosis. No attempt is made here to elaborate the technique of the total clinical syllabus, but rather to emphasize the relevance of the Social Maturity Scale in clinical practice. *These case-studies afford another aspect of experimental validation.* This leads to logical inferences as to the extent to which the Scale may be useful for casework when other critical details of the case-study are lacking. The logical formula is that if A resembles B, then B resembles A, without necessarily implying complete identity or substitution.

These case-studies have been selected for their illustrative value rather than to support a systematic argument. Some of them are rather sketchy, others are more detailed; some show the individual at cross-section appraisal, and others over fairly long periods of observation. Detailed discussion of specific item scores has been generally omitted, since this would involve more explicit and perhaps tedious exposition than might repay the reader. Moreover, perhaps the very obviousness of the relation of the social scores to the other clinical details obscures rather than clarifies the contribution which the Social Scale makes to the case study as a whole. In his own clinical use of the Scale the careful examiner will, of course, analyze the detailed distribution of item scores in terms of their categorical significance, and deviation values, in relation to such disabilities or special aptitudes as may be present in each case. Such more detailed practicabilities have been reported in other chapters.

The data on SA and SQ are compared directly principally with the corresponding data from 1916 Stanford-Binet MA and corresponding IQ. The warrant for this derives from: (a) the methodological and statistical philosophies of these two instruments, (b) the significant differences in content and examining procedures, and (c) the dependence of social age on mental age. Moreover, the Binet method of mental age measurement is the most widely used single clinical procedure for the measurement of intelligence in general clinical practice.

These comparisons between Binet MA and SA are embarrassed by questions of statistical equivalence and psychological comparability (e.g., variability, reliability, validity, technique of test administration, effects of re-administration). The general difficulties of such equivalence and comparability of psychometric scores have been set forth elsewhere (Doll, 1947).

There is another issue which is even more difficult to resolve, namely, the difference in ceilings between the two scales both normatively and differentially. There is reason to believe that the MA ceiling for the feeble-minded varies with final mental age and for most feeble-minded subjects falls short of the average normal ceiling (Doll, 1921). And there is evidence (Chapter 11) that the ceiling for SA varies with final SA and falls appreciably short of the normal average ceiling. These differences in both average and differential ceilings for feeble-minded subjects further complicate the interpretation of the data in the life age range that lies beyond the normative ceiling for MA (which is approximately 10 years below that for SA). Here again we cannot do other than present the data at face value, but must warn the reader that in comparing MA's with SA's, and IQ's with SQ's, after LA 15 years for the feeble-minded S's of this chapter the differences in SD's and ceilings should not be overlooked (cf. p. 416, 543).

There is still another difficulty, namely the fact that most feeble-minded subjects fall below minus two sigma, and the low-grade feeble-minded are below minus four sigma. Since this represents the attenuated tail of the distribution, the sigma values at this range are of uncertain significance when expressed in precise numerical terms. The ramifications of this problem are not pursued here but will be apparent from thoughtful consideration of the implications to those well advised in statistical inference.

Finally, in respect to the diagnosis of mental deficiency we assume the reader is familiar with the necessity for employing multiple criteria (Doll, 1941, 1948) and establishing etiology (Doll, 1946). Such issues are here subordinated to the more immediate intention of relating the Social Scale technique to other features of casework.

CASE I. CLARA AND ANNA S. *Superior Twins.*

This is not a clinical case-study; rather it illustrates the informal use of the Scale (in this case a retrospective estimation by correspondence) for revealing small but significant individual differences. Some friends, learning about the Scale, asked for copies of the blank and the brief manual with a view to a better understanding of their identical twin adult daughters. The following letter was subsequently received from the mother:

> "I wish I had had your scale in rearing my six children to help me to decide what to require and to offer. I would have been fascinated to apply this scale to our twins during their earlier years, but am sending you such information as I could recollect. You will note that Clara was generally a few months ahead of Anna in intellectual development.
>
> "I remember one very interesting contrast. Everyone in and out of the family was convinced that Clara was superior to Anna except in 'obligingness' and 'interest in the other fellow.' Because of this last, or perhaps for some other reason, I think Anna's SQ would always have measured higher by anything you could name in words. Thus she always carried the purse for the two of them, yet one felt that if anything serious would come up Clara would come to the front. And today Anna has quite a promising medical career before her while Clara is merely (!) a home-maker. Yet because she got started on it sooner and because it was what they both wanted to do, and because having children seems to me supremely necessary, I believe Clara is superior though the fact would probably not come out in any form of ordinary test question. Anna is to be married to a professional man this September but Clara has been married two years to a man who has just left the rank of foreman in a steel company but who seems headed for the top."

The following observations are taken from the information reported on the blank somewhat in the form of a comparative developmental history. On Scale items 2, 8 and 15 (Balances head, Sits unsupported, Stands alone) Clara was ahead of her twin sister by a few weeks. This was true also for items 31 and 34 (Uses names of familiar objects, Talks in short sentences).

On such other items as were recalled below Year IV there were no noticeable differences between the twins. At five years, Anna would "change" her infant brother (Item 72, Does routine household tasks!), whereas Clara would not, except when greatly urged. Likewise, on Items 61, 92 and 96 (Goes to school unattended, Goes to near-by places alone, Goes to distant points alone) Anna always led the way. In the more advanced communication items (Items 90 and 91) Clara continued in the lead, although both were graduated from college with distinction. At age 25, Clara, now married, is rebuilding a divided church and exercising a reform influence in the local education system (Item 110, Promotes civic progress), while Anna "plans her medical fiancé's career" (Item 109, Inspires confidence).

This illustration merely suggests some personal guidance possibilities of the Scale, even in the case of identical twins, where the differences though slight in amount were different in direction, and where development was superior to, and generally in advance of, the average normal person. Note that this Scale evaluation "catalogued" certain achievements without necessarily accounting for them; the latter is a separate task to which the item performances attract explanatory speculation.

CASE II. KARL M. *Young excitable idiot.*

White, male, LA 8 years; superior home environment—father (Ph.D.) university professor, mother (A.B.) housewife, one brother in first grade at age 7 years; prekindergarten schooling.

Karl has been a resident pupil for three years in a private institution for the mentally deficient, diagnosed as idiot grade of mental deficiency, no special clinical type. The history shows no significant abnormalities other than gravely retarded mental development. Etiology is exogenous, with suggestion of early encephalitis. He was admitted to the institution at the age of 5 years because of retarded development and difficult behavior. No significant physical handicaps are apparent aside from possible hydrocephalus. Social behavior requires constant supervision and control. He is hyperactive, excitable and destructive in behavior, has no speech, understands language to a limited degree, has very limited occupational aptitudes. Educational aptitude is limited to training in personal habits.

A succession of Social Scale applications, with corresponding Binet scores, is recorded as follows:

LA	MA	SA	IQ	SQ
5.3	1.5	1.7	28	32
5.8	1.3	1.9	23	32
6.3	—	2.2	—	35
7.3	1.5	2.6	19	34
8.1	1.6	2.7	20	33

These results show the MA remaining substantially constant with the IQ showing consequent decrease. The SA shows 1.0 years increase in 2.8 years with corresponding net SQ increase of 1 point. The net MA *rate* of increase for the period is 3.6, whereas the net SA rate of increase is 36. The IQ has decreased by 30 per cent of its initial rate, whereas the SQ has remained substantially constant. The SA net rate of increase is twelve per cent greater than the initial SQ. (The net *rates* of increase in MA and in SA are interval rates obtained by dividing the differences between given MA or SA scores by their corresponding time-intervals, or LA differences. IQ's and SQ's are cumulative rates at given MA's and LA's for the total time-interval since birth.)

The MA—SA, and IQ—SQ, differences are consistent with the typical performance of this grade of mental deficiency. The Social Scale confirms the diagnosis of middle-grade idiocy established by the behavior picture, the overall history, and the Binet mental age. Descriptive evaluation of the Scale items shows lack of articulate speech, with other performances consistent with SA score level without significant special aptitudes. Karl passes (at last examination) all items to Item 37, inclusive, except Items 31 and 34. He also passes Items 39, 42, 45, 47, 51 (±) and 54. He fails all others. In short he has no useful speech, requires relatively constant supervision, but succeeds in the simplest forms of self-help. These results suggest both the direction and promise of training as well as its limitations.

CASE III. GEORGE C. *Adult idiot with some senile deterioration.*

White, male, LA 64 years; favorable social-economic background—father bookkeeper, brother and sister "living and well," mother (housewife) 25 at child's birth; prekindergarten schooling; no occupation.

George has been a resident pupil at a private institution since the age of 7 years. His very age (64 years) and length of institutional residence (57 years) are of special interest because idiots seldom live so long, and because the influence of environment upon his social maturation can be estimated from the long record of conscientious efforts toward treatment and training. The ineffectiveness of those efforts sheds some light on the influence of environment and training upon social maturation, coupled with all practicable medical attention toward the same end.

The etiology of his condition though presumably exogenous is clinically undetermined, with family history, birth history, medical and developmental history essentially negative. Repeated physical examinations revealed no significant physical handicaps aside from general gastrointestinal disturbance and the physical characteristics of idiocy itself. The history is one of early retardation in development, with Binet MA (1908 Scale) of 2.1 years at LA 30, fluctuating later between 1.3 and 1.6 years. His behavior shows a tendency toward infantile irresponsibility and dependency, with some destructiveness and excitability in the early years. In more recent years he has become somewhat enfeebled, with reduction in activity and increase in dependency.

The long record of institutional reports on training and adjustment portrays a steady level of arrested mental responsiveness to training, which has been intelligently, solicitously, and unremittingly continued to the present time.

Successive Social Scale scores in recent years show the following results, with Binet MA (1916 Stanford) at 1.4 at the beginning of the period.

LA	SA	SQ
54	1.8	7
55	1.8	7
56	1.3	5
57	1.5	6
58	1.3	5
60	1.6	6
61	1.8	7

These successive scores indicate both the precision and the reliability (probable error of measurement) with which George's level of social maturity can be measured. The scores fail to show the qualitative indications of progressive enfeeblement reflected in the general description of George's conduct during the past several years. This enfeeblement apparently is not yet sufficiently severe to result in measurable deterioration, nor does it seem to have affected his most recent MA measurements, which have remained steady at about 18 months.

The SA scores are somewhat illuminated by the following description of his aptitudes. "George walks short distances with a slow shuffling gait. His speech has never gone beyond the limitation of sounds such as saying 'mama' and 'papa,' although his hearing seems normal. He is a tall, heavy boy who is daily becoming an increasing burden to himself and finding it more difficult to walk. He falls frequently although he moves about carefully, especially near steps, which he takes one at a time. He is watched continuously and must be assisted even to get in and out of the sand-box else he would fall. Once on his feet, he can move until an obstacle appears in his path. At night he roams about the cottage tearing whatever clothes he can lay his hands on. During the day he thumbs through picture books, handles mechanical toys and blocks, or sits in the sand-box by himself. He recognizes people and, liking to be noticed and smiled at, attempts to get their attention. George is washed and dressed by the cottage parent; he is unable to get his arms and legs into the proper places in his clothing. He removes his coveralls and throws them from him; he has never learned to put them in a set place. Soiling occurs both at night and during the day. Well-crushed food is placed before him in a bowl with plenty of milk; this he eats with a spoon as best he can. Much of it goes on the table or floor. Between meals he needs to be watched to prevent eating trash. Given a pencil, he breaks it or casts it from him with no idea of its use. A smiling-faced boy, drooling copiously with his tongue hanging out over his lower lip, George is led from place to place, a man-infant."

Since this was written George was laid to rest "near the grove where so much of his life has been spent." An affectionate obituary noted that: "His only appointed task, that of living sixty-four years, had been accomplished. . . . . . The care and spiritual responsibility for this little boy (sic) has never been laid down for a single hour, day or night."

CASE IV. FANNIE X. *Adult high-grade imbecile with special occupational aptitude.*

White, female, 43 years old; early home environment inferior, later environment institutional; fourth in line of five children, father fruithouse porter, mother 24 at child's birth, two brothers "living and well (1912)," one brother and one sister deceased; academic schooling first grade; vocational schooling third grade.

Fannie has been a ward of the State Board of Children's Guardians since childhood, residing in a private institution for the mentally deficient since 12 years of age. There are no apparent physical handicaps; record of rather poor health during adolescence. The history shows mental deficiency from childhood, with Binet MA of 6.2 years at LA 12.9, IQ 48, diagnosis high-grade imbecile, etiology presumably endogenous but not clearly determined. The Binet MA increased gradually to 7.2 years at LA 16 and since then has remained static at 6.8 to 7.0 years, with IQ at approximately 50 (14-year ceiling). Her disposition has been somewhat unstable and characterized by untrustworthiness, sullenness, insolence, and refractoriness, alternating with their opposites. This dispositional instability and consequent undependability have served to limit the capitalization of her occupational aptitudes in the direction of domestic work. At school she made fair progress in the occupational arts; in her cottage group she became skillful as a substitute cook. However, she never progressed in school work beyond the first grade.

The Social Scale, administered five times between LA's 37 and 43 years, yielded scores of SA 8.8 to 10.0 years, SQ 35 to 40. This is consistent with the general picture presented above, showing a general social competence superior to mental competence. (Although the SA exceeds the MA by 2 to 3 years, the IQ exceeds the SQ by 10 to 15 points due to the difference in normative ceiling for calculating quotients.) The SA score is superior to the MA score chiefly because of Fannie's occupational aptitudes. Or the MA may be considered an underestimation of her intelligence because of relative verbal inaptitude. Her total social score is depressed from even higher expectancy because of illiteracy and temperamental undependability. The illiteracy may not be environmentally discounted (she has had adequate educational opportunity). Specifically it reduces her competence in the field of her special aptitude by precluding her reading recipes, ordering supplies, and estimating costs; and generally it curtails her other attainments.

Fannie's undependability likewise reduces her competence by making it impracticable for her to be left alone, or with children, or to permit much social freedom because of her tendency toward indiscreet, irresponsible, or even violent behavior. Moreover, her variable disposition, with periods of pleasant cooperation alternating with antagonistic non-cooperation, makes "getting along" with her extremely difficult. Her competence is further reduced by poor judgment and limited capacity for thinking things out for herself. Fannie is therefore specially interesting as illustrating the type of individual who under favorable circumstances may be socially *useful,* but who cannot be counted upon to be socially *successful* for any protracted period of time. She also typifies the limiting effects of specific personality handicaps on social adequacy.

In spite of these handicaps Fannie is considered one of the most competent girls in her cottage because of her specific occupational talent. She works effectively as assistant cook, is capable of substituting for brief periods as cook (and does so within the overall framework of supervision), "directs" other girls in preparing food, and is sometimes left "in charge" of the kitchen for short intervals. These favorable aptitudes are presently maintained at a commendable degree of adjustment through continuous supervisory "build-up." But Fannie's most optimistic endorsers have no hope that she could become occupationally self-sustaining, or that she could manage herself or her affairs with ordinary prudence independently of alert supervision and frequent assistance.

Descriptive notes. Walking and talking normal. Fannie is a rather large girl who constantly needs checking by another person to keep her appearance neat. Although she bathes herself, this must occasionally be suggested to her. Such supervision is deeply resented by Fannie and may cause an outburst of her violent temper, for she "gets mad at almost nothing." Personal habits are clean. At the table Fannie acts as any normal person would. The kitchen is her stronghold. There she reigns supreme. She thinks she is supervisor of this division of the household and asserts her authority with a will. No one can tell her what to do without getting a taste of her surly disposition. She does the cooking for a cottage of girls when the regular cook is off duty, helping at other times; she is the only girl in the cottage permitted to use matches and attend the stove. In spite of this trust it is evident that Fannie will never be able to hold a job successfully except under supervision as here, or possibly in family care. Her abilities in the kitchen are limited to cooking, preparing foods, and cleaning, for her inability to read and write more than a few simple words makes it impossible for her to make out menus, follow recipes, write orders, pay bills, purchase foods, or even use a telephone to call the corner store. Leisure time activities consist of poor embroidery, darning by pulling the sides of the tear together, and an occasional game of pinochle which is only a weak imitation of the game itself. She belongs to the girls' club, but spends her time at it sitting in a rocker. In spite of an apparent lack of interest in boys, Fannie's shyness, coyness and occasional smiles and laughter without cause indicate that she would very probably be an easy victim for the opposite sex if left without supervision either inside or outside the institution.

Detailed analysis of scale item scores and informant's gratuitous comments confirm these observations. This analysis also points up the need for systematized evaluation of items because of relative success and failure in different aspects of total adequacy. This need for categorical measurement is apparent also in Case V as well as less conspicuously in others to follow.

CASE V. FREIDA D. *Marginal mental deficiency with specific occupational aptitude.*

White, female, LA 28 years; inferior early environment, 15 years institutional residence; father shipyard laborer (schooling unknown), mother factory worker (5th grade schooling), both socially marginal; 3rd grade literacy.

Freida was a ward of a county Children's Home from at least 10 to 13 years of age, and since then has been a resident of a private institution for the mentally deficient. She came from a borderline type of family, the mother described as probably high-grade feeble-minded. She appears to be a simple case of endogenous marginal mental deficiency. No significant physical disabilities are noted. The developmental history shows mental retardation from at least late childhood. Binet MA was 7.0 years at LA 9.8, IQ 71, subsequently progressing at a substantially constant rate to MA 10.1 at LA 14.3, IQ 72, then to MA 10.7 at LA 19.4, IQ 76 (14-year basis), and most recently to MA 11.3, IQ 81. Performance on other verbal tests confirmed the Binet at slightly lower levels, whereas performance on non-verbal tests approximated low-average normal scores.

Public school special class education, followed by continuous institutional school training, has enabled Freida to reach a fair third-grade level of achievement. Mental characteristics, in spite of relatively good performance on the non-verbal tests, are those of a high-grade feeble-minded girl with poor judgment, unstable behavior and limited degree of responsibility. Conduct is characterized by outbursts of temper, some tendency toward vulgarity, boisterousness, lack of neatness, but these tendencies are offset by definite improvement in recent years in disposition, appearance, and behavior. Under specially favorable conditions she has improved in social adjustment and has become quite dependable in domestic work, especially in kitchen work and table serving. She has also improved in responsibility.

Both the mental diagnosis and the tendency toward improvement in social competence are reflected in a succession of Social Scale scores as follows. (The first three MA's are from pre-institutional records. The last three SA's are of the same date by different informants and a single examiner, the last SA being self-informing).

LA	MA	SA	IQ	SQ
9.8	7.0		71	
10.9	8.5		78	
11.9	7.6		64	
13.2	9.3		70	
13.7	9.6		70	
14.2	10.1		72	
15.6	10.3		74	
16.5	10.2	10.4	73	63
17.5		12.0		69
18.4		12.0		65
18.6		12.9		69
19.4	10.7	14.7	76	76
20.6		13.8		67
21.4		14.1		66
22.6		13.2		58
23.5		12.6		54
27.3		13.2		53
28.4	11.3	13.8	81	55
28.4		13.2		53
28.4		14.1 (s)		56

The SA scores after LA 18 are fairly stable at SA 13.5 ± 1 in spite of Frieda's unstable conduct.

This case-study illustrates the value of the Social Scale at the upper borderline of mental deficiency. In view of the complete overlap in Binet mental age and Binet IQ between the lower limits of inferior normality and the upper limits of high-grade mental deficiency (Binet MA 8-12 years) (see p. 543), the MA or IQ "diagnosis" is equivocal at this level on this widely used standard. Moreover, this S presents a deceptive appearance of favorable social aptitudes because of superficially favorable conversational aptitude, superficially good judgment, special skill in kitchen work and at table serving, and fair competence at housework under supervision. The observer is likely to discount the educational inaptitude, the inherent lack of sound social judgment, the markedly unfavorable conduct disturbance, the uninhibited sexual proclivities, and other weaknesses of social self-sufficiency and self-management.

These discrepancies are clearly revealed through the use of the Social Scale which shows the ultimate social competence of this S within limits of mental deficiency. Whereas the normative ceiling of social maturation is LA 25 years, this girl reached her ceiling at LA 19 years; and whereas the lower limit for normal social self-sufficiency is SA 18 to 20 years, this girl did not reach a maximum score of SA 15 years. This maximum score is only slightly reduced by protective institutional regimentation with consequent lack of freedom of social opportunity, nor is the score reduced by limiting handicaps except as to the unfavorable conduct and social untrustworthiness.

The social age in this case has remained fairly constant over the last ten years except for minor variations in examining and scoring. These variations illustrate the necessity for careful administration of the Scale in those ranges where the score is variably modified by generous or rigid scoring on a relatively small number of items. Such scoring requires an insightful degree of sophistication. In this case the variable scoring applies to only four items, namely Item 81 (Purchases by mail), Item 88 (Engages in adolescent group activities), Item 93 (Goes out unsupervised daytime), and Item 94 (Has own spending money). This girl's performances for these four items is definitely marginal; they are scored plus by some examiners and minus by others, depending both on the care with which the information is obtained and the variable aptitudes of this girl herself in this respect. If these borderline items are all scored full plus, the SA rises to about 15 years; if they are disallowed it drops to about 13 years. Probably the "true" score is between these limits.

In spite of the subnormal SA, this girl's favorable occupational aptitudes and relatively high MA continue to suggest the possibility of extra-institutional placement. She appears to be a specially good prospect for placement in family domestic service (if favorable home care, supervision, guidance and understanding could be provided) where her aptitudes would have promise of fulfillment while her social irresponsibility would not be taxed too severely. There is some prospect of her succeeding marginally at a low degree of social-economic status, but this must reckon with the prospect of a life of turmoil and poor adjustment. Whether married or unmarried there would be more than ordinary sexual risk, and if she were to have children she would be a poor mother biologically as well as socially. Nevertheless, there is a fair prospect that she could succeed on placement, but only if supervision is competent and continuous, and if the demands to be made upon her would not call for sustained responsibility or initiative.

This case-study may be compared with the preceding as of somewhat the same order but at a rather higher level. In both instances the use of the Social Scale not only emphasizes the favorable aptitudes, but balances such considerations with equal attention to unfavorable short-comings. Without use of the Scale these discrepant aspects of total adequacy might be less apparent due to partial appraisal which might fail to balance assets with deficits, or vice versa.

CASE VI. STEPHEN H. *Borderline dull-normal with early behavior disorder but favorable adjustment as young adult.*

White, male, LA 26 years; unfavorable early environment, 10 years institutional residence; father a shop foreman, paternal uncle a graduate nurse and later a patient in state mental hospital, mother superior personality (foreign-born), one brother Lt. Col. A.U.S., one sister, married; literacy attainment about 3rd grade; vocational attainment about 4th grade.

Stephen was first brought for consultation examination at LA 6 years because of serious conduct difficulties (abusive toward children, stealing, setting fires). At LA 8 years he was committed as a ward of the State Board of Children's Guardians to a private institution for the care of the mentally deficient (with presumption of borderline mental deficiency to account for delinquency and behavior disturbances). There was a history of difficult instrumental birth (maternal age 42). (Note that birth lesion may cause motor defect, mental deficiency or behavior disturbance separately or combined.) There was also a history of childhood virus diseases (measles, diphtheria, whooping cough) which might serve as possible etiological influences (encephalitis). An early speech defect was subsequently overcome, but may have produced early language difficulties and might be reflected in later reading disability. Delayed descent of testicles may have had some bearing on physical development and behavior. However, there were no obviously limiting physical handicaps from the point of view of social maturation except as these might have been involved in his constitutional development as a whole.

The behavior disturbance was serious from early childhood and showed little improvement during 10 years of persistent institutional training. This behavior included impulsive assaultive tendencies, destructiveness, sexual misconduct, theft, running away, cruelty toward animals, which persisted from the earliest records in spite of all environmental attempts at control. This behavior was also rather unstable in character, with brief periods of fairly satisfactory conduct alternating with relatively longer periods of serious misconduct. The early diagnosis was "defective delinquent." He was relatively unresponsive to academic school training and not very successful in occupational and industrial activities. Presumptions of neurotic conflict were not psychiatrically sustained.

The mental diagnosis reported in successive clinical examinations alternated between borderline mental deficiency and borderline dull-normality with the trend over a period of 12 years dubiously favoring borderline dull-normality. Non-verbal mental tests yielded results superior to those from verbal tests, and in some examinations approximated low-average normal scores. Binet MA of approximately 5 years at LA 6 years increased to MA 10 years at LA 15 years, with the Binet IQ varying from a high of 88 to a low of 65, and bordering on 70 from LA 10 years forward. The average interval rate of development during the 9-year period to 14 years was about half the initial IQ. The latest IQ of 71 at LA 15 (14-year basis) is at the borderline of mental deficiency, with a mental age of 10 years, which is within the zone of high-grade mental deficiency and low-grade normality. This MA was roughly confirmed by conversational estimate, at LA 26 years.

This case-study is especially interesting from the point of view of the light that might have been shed on the continuous record had the Social Scale been available at the first clinical examinations. It further illustrates the possibility of supplying approximate Social Scale scores on the basis of history notes. The case is also illuminating in the light of this boy's post-institutional history. With this in view, we have reconstructed approximate retrospective SA scores at successive LA's on the basis of the information available in the history, supplemented by inferences as to Stephen's social competence drawn from clinical summaries at successive periods. It is interesting to observe the success with which this can be accomplished and to note the further light thus shed on the case when viewed retrospectively. This also indicates the possibility of plotting retrospective growth curves on the basis of history notes, even though this must be done with some caution and the results can only approximate those that would have been attained by direct examination. (See also Case XII, p. 618.)

This study further illustrates the significance of adolescent behavioral disturbance amounting to serious delinquency as a special handicap to the expression of social competence, since the social irresponsibility present in the delinquent individual operates as a handicap to social competence similar to such handicaps as blindness, deafness, crippling, and the like. This boy's recovery from delinquent behavior in early adulthood is reflected in the later SA scores, which are appreciably augmented thereby. Of course, the influence of the mental retardation is also reflected in the social scores, and the language handicap further depresses the scores, but not so specifically as might at first be anticipated.

The progressive record of mental and social scores at successive life ages is indicated in the table. The first two lines of the table represent pre-institutional records. The mental scores were not continued after LA 15 years. The notation "(r)" indicates retrospective scoring. The notation "(s)" indicates self-informing record.

LA	MA	SA	IQ	SQ
6.3*	4.8	3.7 (r)	76	59
7.7*	6.8	4.2 (r)	88	55
8.0	6.7	6.3 (r)	84	79
8.6	6.8	—	79	—
9.1	6.7	7.0 (r)	74	77
10.3	7.2	8.3 (r)	70	81
11.3	7.7	8.6 (r)	68	76
11.8	8.3	—	70	—
12.5	8.7	9.0 (r)	70	72
13.3	8.7	9.0 (r)	65	68
14.3	9.7	9.7	69	68
15.5	10.0	10.9	71	70
16.3	—	11.3	—	69
16.3	—	11.5 (s)	—	71
17.2	—	10.9	—	64
17.8	—	10.0	—	57
26.3**	10.	18.7 (s)	70	75

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*pre-institutional **post-institutional (MA estimated)

The interested reader will make his own observations regarding this progression of scores. The first two SA's are depressed by the unfavorable pre-institutional reports which appear to have been exaggerated in the light of information available after institutional commitment at 8.0 years of age. However, it is noteworthy that the environmental advantages of institutional residence did not during such residence materially offset the lack of potential for development as reflected in the progressive retardation (setting aside the rather implausible argument that institutional residence served to still further retard development).

It is interesting to observe the manner in which the social scores assist the understanding of this case. Between LA's 8 and 16 they tend to coincide with the mental scores and to substantiate the early diagnoses of borderline mental condition. During the next two years the SA's vary somewhat, with net loss instead of gain, and with SQ reduced to within mental deficiency limits. But these social scores must be interpreted in the light of the handicapping effects of irresponsible behavior, so that the final institutional picture (at LA 17) in this case is more typically that of the dull-normal delinquent than of the high-grade feeble-minded.

A self-informing examination at LA 16.3 years yielded a score of SA 11.5, SQ 71, which may be compared with the standard examination of the same date, SA 11.3, SQ 69, thus revealing Stephen's insight regarding his own capabilities. He freely discussed his periodic misconduct, and his less frequent good behavior, but neither he nor anyone who examined him, or who was well acquainted with him, was able to offer a satisfactory explanation of his disturbed conduct. At this date the techniques of dynamic evaluation were not employed; and in spite of orthopsychiatric orientation formal psychotherapeutic procedures were not practically available.

Stephen's post-institutional history is further enlightening. He was transferred at LA 18 to a State Colony for further training and supervision. After six months there he was transferred to a CCC Camp. During two years at two such camps (Idaho and New Jersey) he established a record of favorable conduct and work. Following honorable discharge from the CCC he enlisted in a coast artillery unit of the A.U.S. He was assigned as truck driver for two years, then transferred to the infantry, and later volunteered for paratroop service. He received his wings and was en route to Manila when the war ended, but he saw service there with the occupation troops. His military record was favorable (his highest rank was private first class), with honorable discharge and good conduct medal after a total of five years of military service.

On return to civilian life he obtained employment on a chicken farm (one month) then on a dairy farm (three months) and then on a general farm (as farm hand) where he is at present rated a valued worker after six months of steady employment. His conduct and trustworthiness during these periods are highly commended.

Social Scale re-examination at this time (self-informing with mother present) revealed low average normal success in occupation and self-direction items, with subnormal attainment in communication and socialization items. The obtained SA (18.7 years) reflects accumulated life experience and improved behavior under favorable circumstances. Yet in spite of stable conduct, industry, and trustworthiness, the clinical picture is not otherwise materially modified except as social conformity has replaced nonconformity, and marginal social independence has succeeded social dependence, an encouraging outcome that could not readily have been anticipated from the antecedent history, and the reasons for which are by no means clear.

CASE VII. GRACE N. *Potential feeble-mindedness, middle-grade moron.*

White, female, LA 43 years; early environment inferior, 36 years of institutional residence; mother socially marginal (?), father no schooling, laborer, alcoholic; academic attainment third grade; occupational attainment about fifth grade.

Grace is the younger of two children in a family of marginal social status. For present purposes the case-study may be presented in general outline as that of a young girl of poor immediate heredity (remote maternal ancestry favorable) and unfavorable environment, coming to a private school for the mentally deficient as a state ward at 7 years of age. At that time she seemed to be a normal child handicapped by social circumstances and unfavorable behavior. This judgment was apparently confirmed by mental examination yielding a Goddard Binet MA of 6.7 years at LA 7.3, IQ 92. But the background of her behavior, as well as certain subjectively estimated mental symptoms, suggested that her mental development might continue at a decreasing rate and that she might ultimately prove to be mentally deficient. (A diagnosis of potential feeble-mindedness may be made when the person under consideration falls within average limits of mental development at the time of examination, but shows other evidences in the total clinical study of prospective ultimate mental deficiency.)

There are no significant handicaps to social competence other than a tendency to nervousness and dispositional instability. However, the record shows a history of delayed walking (LA 3) and talking (LA nearly 3) with "St. Vitus Dance" at 4 years. The history is negative for birth lesion. There is a report of positive Wasserman at LA 7, with negative report at LA 29. Measles and whooping cough occurred at LA 3, measles (temperature 102) at LA 19, myocarditis at LA 38, general constitutional subnormality apparent throughout the life history. Etiology is undetermined, perhaps mixed, in view of family background and medical history. In the early family history study it seemed that both parents might be borderline feeble-minded, but later data suggested socially marginal status. The paternal ancestry seems normal. The maternal ancestry dates back to William Pitt with collaterals related to Dutch and English royalty. A paternal cousin is reported as "a woman with a lot of money." The father was last reported living with a third "wife" (he deserted Grace's mother), the mother (who at last reports seemed not to be feeble-minded) as "keeping house for an unmarried man" whom she subsequently married, and Grace's sister as "a moral delinquent who has lived with relatives and various other families," later working as a waitress.

Early in her institutional residence Grace was treated as far as practicable as a normal child and given full advantages both in school and home training in affectionate intimacy with normal adults. There is no plausible indication that her subsequent failure to develop was due to her institutional environment (cf. Case VIII where the opposite type of development is reported). Nevertheless, the record of later development is one of progressive arrest and is fairly typical of the developmental course of high-grade mental deficiency when records are obtained sufficiently early to reveal the progressive decline in rate of mental growth. The picture as a whole, therefore, is one of fairly typical middle-grade moron of uncertain etiology, "caught" at an early age, with progressive retardation in later years. The record of behavioral and occupational inadequacy is also fairly typical except as Grace shows mildly unstable behavior. Her somewhat unfavorable disposition and sensitiveness of mood, with consequent reduction in social reliability, tend to depress her social scores somewhat as a dispositional handicap.

LA	MA	SA	IQ	SQ
7.3	6.7 G	6.1 (r)	92	84
8.1	7.0 G	—	86	—
8.5	7.4 G	—	87	—
9.8	7.4 G	—	76	—
10.8	7.6 G	—	70	—
11.4	7.6 G	9.3 (r)	67	82
12.3	7.6 G	—	62	—
13.3	8.6 G	—	65	—
14.9	9.0 G	—	64	—
16.3	—	9.7 (r)	—	60
20.2	8.8 P	—	63	—
21.2	9.0 P	10.0 (r)	64	47
22.5	8.7 P	—	62	—
23.4	9.0 P	—	64	—
24.3	8.8 S	—	63	—
26.3	—	10.0 (r)	—	40
27.3	9.8 a S	—	70	—
29.6	9.6 S	—	69	—
31.6	—	10.8 (r)	—	43
32.6	9.8 S	10.8	70	43
33.4	—	10.3	—	41
33.7	—	10.5	—	42
34.6	—	11.0	—	44
36.6	9.9 S	11.2	71	45
37.8	—	9.7	—	39
39.3	9.9 S	10.3	71	41
42.8	9.2 S	10.4	66	42
42.8	—	10.8 (s)	—	43

This is another case in which we have plotted retrospective social scores on the basis of history notes. The feasibility of doing so is indicated in the table of reported scores which are on a history basis up to LA 31, and on the basis of direct examination thereafter. However, the retrospective scores have been plotted at intervals rather than continuously (since retrospective scores cannot be plotted accurately at particular ages where information is not sufficient for that purpose). Binet mental examinations were repeated as frequently as three times a year for most of the years up to LA 15, with marked consistency in the results obtained by different examiners. To simplify the table, repeated examinations falling within the same year are omitted from the table. (The notations are G for Goddard Binet, P for Porteus Binet, S for 1916 Stanford Binet, aS for abbreviated Stanford, (r) for retrospective SA, and (s) for self-informing SA.)

Note that the initial Binet IQ of 92 at LA 7.3 years and MA 6.7 years was reduced to IQ 62 at LA 12.3 years and MA 7.6 years. The MA scores then continue to rise to MA 9.9 at LA 39.3 years, with a resulting increase in IQ to 71. (The last MA of 9.2 at LA 42.8 reflects marginal failures on previously marginally successful test items.) This case therefore shows approximately two years' development from LA 7 to LA 13 and another dubious year thereafter (perhaps influenced by "test-wiseness"). The cumulative rate of 92 at LA 7 years is reduced to an interval rate of about 30 for the second seven years of the normative period of maturation for the test-system employed. (Note that this reduction of two-thirds in the interval rate of mental growth is only gradually reflected in the progressively decreasing IQ because the interval loss in rate is obscured in the IQ as a cumulative rate by being "shared" with the preceding years. Note also the plateaus in the MA growth record suggesting "nascent periods" of development.) But the record also shows an increase of another year over the following 25 years. The IQ therefore rises due to this long-continued though relatively small increase beyond the normative LA ceiling for IQ calculation. This later MA increase may be due to the spurious influence of practice and experience, but there is no clear suggestion of presenile loss in the subsequent loss of half a year (which is here accepted as reflecting the variability of the measure).

(When LA 14 is taken as the *average* ceiling of normal mental development, this approximates the median, and implies that in 50 per cent of the population mental development continues in some measure *after* this age. Grace is one such case whose development has continued by a slight amount quite beyond the LA at which such development is ordinarily expected. Case VIII also illustrates this phenomenon except that the rate and the total amount of development are larger.)

This total mental development therefore shows Grace (at LA 43) at the borderline IQ limit of mental deficiency, and at the middle-grade moron level on the basis of mental age. The rest of the clinical picture indicates definite feeble-mindedness. (By "the rest of the clinical picture" we mean here all those objective and subjective considerations which comprise both the science and the art of mental diagnosis, e.g., physical constitution, scholastic and vocational attainments, personality dynamics, environmental assets or deficits, and especially those somewhat elusive qualitative manifestations of capacity for adaptive learning revealed as social insight, practical judgment, and auto-criticism.)

The retrospective SA scores indicate an initial SA slightly below the MA, and thereafter slightly exceeding the MA as is typically the case with higher-grade feeble-minded subjects. The SA score of 9.3 years at LA 11 years yields an SQ of 82. The SA is 10.0 at LA 21 years (interval rate of 7) with SQ reduced to 47. After LA 26 the SA fluctuates between 10 and 11 years partly as a probable error of the measure, and partly as a reflection of unstable health and behavior. (After LA 14 the SQ falls below the IQ due to the difference in the normative ceilings of LA 25 for calculating SQ as against LA 14 for IQ.)

The MA-SA picture therefore ultimately forces a reversal of the judgment that might have been reached on an initial IQ-SQ standard diagnosis (see p. 558). This is in accord with the early evidence (not here reported) from the total clinical and psychometric evaluation, and with the later life experience data.

Aside from the bare scores, the details of the Social Scale examination are highly revealing. Grace's distinctly favorable assets (in many respects) tend to obscure her unfavorable liabilities. When the total score is balanced the early promise remains unfulfilled later. This is acknowledged by Grace herself, whose own insight during the self-informing (last) examination clearly reveals her need for continued supervision in a simple environment. Today she visits her mother's home successfully, but only for short periods. She goes about that home town, but only with meager independence and self-assertion. She selects, saves for, and pays for her own clothing, but cannot make change. In short, all her successes are hedged about by limitations; she does, can, or could—"if," "but," or "except for."

CASE VIII. NORA G. *Potential normal, with delayed mental development.*

White, female, LA 43 years; early home environment (8 years) unfavorable in subcultural family, two years' residence in Children's Home and private home, 29 years institutional residence as state ward; putative father low-grade moron, mother marginal dull-normal; eighth grade literacy; institutional employee (past 4 years).

This case-study is presented in contrast with Case VII. Both girls have lived as state wards in a private institution for the mentally deficient for about the same length of time and from about the same initial LA. They have been surrounded by the same advantages (and restrictions), living in the same cottage group of about a dozen high-grade girls in close friendly association with employees, engaging in the same activities, attending the same school classes, and so on, except as the increasing divergence in mental development led their activities into different channels.

Nora comes from a socially marginal family. The putative father is a well-meaning social type of low-grade moron; the mother, although of the same Binet mental age as the father, is rated as a dull-normal woman of dubious moral and social habits. (The mother's sexual promiscuity and extra-marital pregnancies suggest the possibility that Nora might not be her "father's" child. Nora's ultimate mental status is appreciably better than that of her parents and siblings.) The entire family and collaterals represent "subcultural" stock; Nora's two brothers are rated as morons, and a half-brother as an imbecile, in the same institution.

Nora shows no apparent physical handicaps. On the contrary, she is a healthy, attractive girl of considerable grace and surface graciousness, whose principal personality traits include a friendly languorous disposition, apparent predisposition toward sexual "receptivity," lack of initiative, and absence of social aggressiveness. She does rather willingly and competently the work that is assigned to her. For some years she has been principally occupied in the school department as pupil helper in the sewing classes and as manicurist and barber for girls. She was previously scheduled as a waitress, and "tried out" as a pantry girl and as supervising waitress in the dining room. Throughout the period of institutional residence she has had continuous personal assistance from the school principal.

In spite of repeated diagnoses of potential borderline dull-normality, Nora remained an institution ward from LA 10 to 40 years because of her social background, her early need for institutional type of training, and the imminent misgivings regarding her limited aptitudes for independent judgment, personal discretion and occupational success. Much of her present success has been encouraged by this continued care and the interest taken in her by institutional employees, both personally and in her training. Her family background offered no social haven. Her physical attractiveness, presumptively weak resistance to sexual advances, and lack of occupational aggressiveness and social initiative, conspired to rate her as a poor social risk. The early opinion of those responsible for her was that in the protected institutional environment she was happier, more useful, and socially more successful than she would be on her own responsibility in the world at large. (Note institutional residence raises certain barriers to social competence while leveling others, cf. Chapter 13.)

LA	MA	SA	IQ	SQ
10.8	7.8 G	8.3 (r)	72	77
10.9	7.6 G		70	
11.4	8.2 G		72	
12.6	8.6 G	8.9 (r)	68	71
13.1	9.0 G		69	
14.1	9.4 G		67	
14.7	9.6 G		69	
16.0	10.2 G	9.5 (r)	73	59
18.0	11.2 P		80	
21.1	12.3 P	11.2 (r)	88	53
23.2	13.6 P		97	
24.4	14.6 S		104	
28.2	15.3 S	16.5 (r)	109	66
29.6	15.3 S		109	
31.1		17.8		71
31.7		18.3		73
32.6		18.8		75
33.6		18.4		74
34.7	14.7 S	18.0	105	72
35.6		18.3		73
37.3	14.8 S	18.6	106	74
38.6		18.2		73
39.0		16.8		67
39.1		17.5		70
43.5		19.7 (s)		79

Nora's successive Binet MA scores are presented in the preceding table. Five retrospective Social Scale scores based on history notes are given at various LA's, with standard examination scores represented after LA 30. The initial MA of 7.8 at LA 10.8 years, IQ 72, increased to MA 15.3 at LA 28, IQ 109, remaining at MA 15.0 ± .3 thereafter. The IQ as a cumulative LA rate of mental growth dropped from 72 at LA 10 to 67 at LA 14, and thereafter rose to 109 up to LA 29 (due to increase in MA beyond normative ceiling at LA 14). From LA 10.9 to LA 24.4 years of age the annual interval rate of MA increase continued steadily at fifty per cent (7 years in 14), or a half-year of mental age for each year of life age. This was remarkable, not only for the steadiness of the increase, but more particularly for its long continuance beyond the normative ceiling. From LA 24 to LA 37 years there was an increase of .7 years in mental age, but this was followed by a corresponding loss at LA 37, indicating that mental development had apparently ceased.

This unusual record of long-continued development at a fairly substantial rate is generally confirmed in the records of behavioral progress as well as by a large number and variety of other psychometric and achievement tests, literate, oral-verbal and non-verbal. It is also paralleled by corresponding capitalization of mental age in educational attainment to approximately eighth-grade literacy.

Retrospective SA scores, readily obtained from pooled history notes, were higher than the MA scores at three of the five LA's for which they were established. The SQ shows continuing decrease during the developmental period up to LA 25 years because the rate of increase was only at about half the normal rate. However, the standard SA scores are fairly steady from LA 31 to LA 39 at SA 18 ± 1, the fluctuations presumably reflecting the probable error of the measure under different examiners. The high SA scores reflect generous scoring, and the low scores rigorous scoring, on a few borderline items. The influence of environmental limitations (NO items) is reduced by the system of scoring (which allows full credit for such items in the range of plus item scores, no credit in the range of minus item scores, and half-credit between those ranges). When environmental restrictions were first removed (by transfer to employed status) the SA rose from 16.8 to 17.5. The ultimate "free" score (self-informing, after 4 years as institutional employee) rose to SA 19.7 years.

Nora's adult social scores are close to the margin between mental deficiency and dull-normality. This is in spite of the restrictions of the institutional environment (which cannot properly accord full freedom of self-direction to its wards). At the time of these examinations it was estimated that if Nora could be placed entirely "on her own" the social scores would increase about two years, which would be just within the low normal limit. This assumed that she would be completely self-directing and self-sustaining on a socially acceptable plane. (In this connection, and with respect to this particular case, it must be recalled that many persons within clinical limits of normality do not always exercise good discretion [social adjustment] even though they may be favorably self-maintaining and self-directing [social competence]. Such persons may experience various kinds of trouble because they do not manage their affairs prudently, even though their overall competence is beyond the feeble-minded limits.)

If the most favorably recorded "no opportunity" items in this case (while a state ward) were all scored minus, the final score would be depressed to about SA 17. If they were all given half-credit, the score would be raised to about SA 19. If they were all allowed full credit, the score would be increased to about SA 21. It is significant that even the first of these possibilities gives Nora a score close to the upper limit for institutional (feeble-minded) subjects. That score is exceeded by only one other S in the same population, himself a borderline dull-normal. Those subjects who fall below these limits do so because of their incapacity to surmount the environmental restrictions rather than because of the restrictions. If Nora were herself socially more dominant or aggressive, she would have surmounted these restrictions still further and would have taken a normal departure from an environment which, after all, could not hold her forcibly.

Such a possible outcome was anticipated, and Nora at LA 39 was "paroled" in the care of the institution as an employee. This action did not at once materially alter her status except to establish her formal independence, which was at first nominal, but was extended as rapidly and as fully as her aptitudes and self-determination made practicable. This of itself altered the scoring of certain items in the Social Scale at the lower limit of adult self-sufficiency. Yet success on these items seemed rather inculcated than vigorously assumed. This process involved the rejection of many institutionally conditioned habits and attitudes, but at her best Nora still revealed marginal expressive capacity for self-determination. It remained to be seen how successfully she could independently capitalize those assets so carefully nourished during the previous nearly thirty years of institutional instruction and supervision.

Nora's record four years after transfer from pupil status to employee status (at LA 43) indicates that she made a successful shift from sewing teacher helper and pupil barber to similar paid work in the same environment. The transfer was accomplished gradually from probationary to accepted status at standard compensation. During the early period of this transition she was subject to gradually relaxed supervision. At this time she felt herself the object of critical observation, and experienced a need for specially circumspect appearances. This resulted in a low degree of self-assertion and initiative, which was somewhat reinforced by both personality predisposition and the effects of long regimen.

A self-informing examination at LA 43 years yielded SA 19.7 years, SQ 79, or marginal low-normal degree of competence after four years of "freedom." This was two years above the last SA as of final pupil status at LA 39, and one year above the highest SA during pupil status (range of SA from 18.0 to SA 18.8 during LA's 31 to 38). This increase to some extent reflects the effect of relaxation of environmental influence on NO items and to some extent the stimulating consequences of full social independence.

CASE IX. KEITH H. *"Spastic," middle-grade imbecile.*

White, male, 23 years old; early environment average, 17 years institutional residence; father grocer's clerk (education not stated), no details on mother, no siblings; education at kindergarten level.

Keith comes from an average family, negative for mental deficiency. The history in this case shows a strong presumption of cerebral birth lesion with resulting cortical pyramidal spastic paraplegia. He is frail in physique, and his health record shows many minor physical ailments in addition to marked motor handicap of the lower limbs (associated disturbances in balance, poor manipulation, and generally poor muscular tone, speech unimpaired). He received continuous physical therapy (muscle training) during the first 8 years of his residence in a private institution for the mentally deficient. In spite of severe neuromuscular handicap and mental deficiency he made favorable progress in physical, motor, and social development within the limits of his capabilities. His behavior has been generally favorable. He is described as a friendly, lovable boy of considerable initiative and independence, whose favorable social attitudes and aptitudes give the impression that the results of mental examinations do not adequately describe his underlying abilities. It would seem, however, that his favorable social traits and winsome personality lead to overestimation of his basic aptitudes.

The developmental history shows severe retardation at the time of first institutional examination (LA 6.6, MA 2.8, IQ 42) in addition to poor health. (Preadmission examination reported MA 4.0, IQ 65.) During 17 years of residence his Binet MA gradually progressed to a maximum of 5.0 years at LA 14.5, IQ 36. This shows a net gain of approximately two years over an eight-year period, or a net rate of MA development of 25 for the period, or 60 per cent on the initial IQ (ignoring pre-institutional report). The corresponding loss in ceiling IQ was not great because of being "shared" with the preceding years as a total cumulative rate. The Binet mental score has been rather generally confirmed in this case by a wide variety of other tests, with age scores ranging between 4 and 6 years. His progress in school has corresponded to his mental development, showing a slow development at prekindergarten and kindergarten level.

The social scores and corresponding Binet scores from LA 12 years forward are as follows (10 semi-annual Binet tests between LA 6.6 to 11.8 years yielded slow but steady increases from MA 2.8 to 4.7 years, IQ range 36 to 50).

LA	MA	SA	IQ	SQ
12.8	4.8	6.5	38	51
13.2	4.5	6.4	34	49
13.6	4.3	7.4	32	54
14.5	5.0	7.1	36	49
15.4	—	5.8	—	38
15.8	5.2	6.9	37	44
16.5	—	7.8	—	47
18.0	5.2	7.5	37	42
19.0	5.0	8.0	36	42
22.9	—	7.5	—	33
23.8	5.7	8.3	41	35

These data reveal SA's and SQ's definitely superior to MA's and IQ's except as the SQ's drop because of higher normative ceiling. The social scores show variability rather than significant increase (SA about 7.5 ± 1) throughout the total period. (Note that the developmental ceiling for mental defectives is reached much earlier than the normative ceiling, except in cases of delayed development, and is positively correlated with ultimate SA.)

The social scores in this case are of special interest as indicating a winsome type of individual with social maturity in advance of intellectual maturity, and this in spite of serious motor handicap. However, the scores are moderately over-generous in most instances because the examiners failed to employ sufficiently wide-range examining in view of the motor handicaps. In this case, the motor handicap (most marked in the legs) retards but does not prevent locomotion or manipulation. Hence the physical limitations do not greatly affect the social scores, especially since they are partly compensated by an unusual degree of persistence. This in turn creates a favorable aura in the total examination which induces sentimental leniency on the part of some examiners who tend to infer and concede too favorable item scores. (cf. Case XI.)

This case-study therefore illustrates the hazards of "solicitude" on the part of the *examiner* rather than the informant. The overall picture of this S encourages "soft" examining with tendency to deprecate failure because of favorable attributes on the part of the S. Hence the effects of handicaps are minimized. And if the examiner is personally acquainted with the S there is the further risk that he will score the S in terms of *his* foreknowledge or prejudices rather than those of the informant. Hence the examiner should be fully alert to his own attitudinal "sets" as well as those of the informant. Such sets are also readily induced by the aura of the examination even when the S is a stranger to the examiner. The effects of "set" may, of course, be in the opposite direction, for opposite reasons, to those noted in this case. Nevertheless, it is a merit of the Scale that ordinarily the "personal equation" of the examiner or the informant seldom affects the obtained scores by more than the probable error of the measure, to which of course they also contribute. It is the *constant bias* of examining or scoring which produces distortions consistently above or below the "true" scores.

CASE X. ISAAC L. *High-grade moron, verbalist, possibly constitutional inferior.*

White, male, 61 years old; superior home environment, attended private school for twelve years, twenty-seven years institutional residence; father well-to-do merchant, no other details on father or mother; eighth-grade literacy.

This case-study is presented to contrast the measurement of social competence with the measurement of intelligence in relation to borderline diagnosis. Viewing Isaac's history retrospectively, we note that he has never been socially or occupationally adequate, yet this inadequacy has been obscured by a relatively high degree of educational attainment coupled with relatively high intelligence test scores. Academically we might make a distinction in this case between intellectuality and intelligence, meaning by the former the sum of acquired knowledge, and by the latter the capacity for rational comprehension and insightful judgment. Isaac reads well and assiduously, though rather indiscriminately, at about a high-school level and also with a fair degree of verbal comprehension for the content read, but without very much insight as to its meaning or relevance. This verbal facility, coupled with good verbal memory, has produced a superficial erudition that enables him to score well on literate and oral-verbal tests of intelligence, and to improve his scores on such tests with repetition. However, he is notably weak in the common-sense type of judgment and reasoning, and is easily tripped or confused in argument where discriminating use of his information is at stake. His initial scores on intelligence tests tend to be relatively poor, but are materially increased on successive test administration. On the other hand, his performance on non-verbal performance and manipulative tests lags appreciably behind the verbal test scores, and there is very little social capitalization of his voluminous vocabulary and range of information. His intellectual attainments, therefore, reveal only superficial comprehension of the repetitive and reproductive sort. These aptitudes and inaptitudes are typical of the "crystallized" versus "fluid" capacities of the exogenous mental defective.

Although he has had excellent environmental opportunities, such as private schooling, work in his father's office, travel, and persistent training in many directions, his attainments fall far short of average social sufficiency. He is readily recognized as "queer" and childish, and approaches the obnoxious by his obtrusiveness and poor social judgment. He has spent numerous summers in a small private camp where he had ample opportunity for social freedom in the neighborhood and in the nearby town in close association with normal youth and adults, so that his social disabilities can not be considered as due to environmental restrictions.

Similarly, although there are numerous physical peculiarities present in physique, in appearance, in neuromuscular facility, and the like, these are not of such a degree or kind as to constitute significant barriers to social performance. His interests, hobbies, and activities are effeminate rather than virile. He shows a high degree of persistence and industry, but only on trivial matters. His behavior is excellent except for minor episodes of maladjustment resulting particularly from being teased and taken advantage of by younger companions.

In sum, he might be described as pseudo-normal rather than pseudo-feeble-minded, since in spite of relatively good verbal intelligence his whole social history is that of a rather incompetent high-grade moron. He might properly enough be considered as a constitutional inferior, or as a constitutionally inadequate personality, but without psychopathic manifestations; his tendency toward self-reference, relatively poor insight, and lack of useful application might by some be considered a very mild form of schizophrenia. If his behavior were antagonistic rather than amenable, or if his suggestibility and poor judgment led him into anti-social directions, he would probably be described as a constitutional defective.

The history shows early and continuous retardation of mental development without deterioration except for some reduction in social competence in recent years (which appears to be the result of decreasing social activity suggestive of early senescence rather than genuine deterioration).

The etiology is obscure from history data but clearly exogenous from symptomatic inference. Maternal age at birth was 28, paternal age 30; second-born, full term, ordinary labor, maternal reproductive efficiency not abnormal as reported. No history of prenatal, natal or postnatal pathology. No evidence of endocrine disorders. Mincing gait (petit pes); poor muscular coordination; simpering effeminate personality; fairly stable behavior; crystallized mental pattern; absence of fluid aptitudes; ritualized activities and relatively rigid interests and pursuits; marked suggestion of central impairment but without evidence for specific causation. (Incidentally, the differential and etiological diagnoses were a matter of concern to married collaterals with reference to the likelihood of familial transmission.)

LA	MA	SA	IQ	SQ
33.8	12.1 S	12.3 (r)	86	49
34.2				
36.5	12.2 P		87	
39.6	12.5 P	12.9 (r)	89	52
40.8				
42.6	13.5 S		96	
43.6	13.9 S	13.8 (r)	99	55
44.8				
47.2	12.4 S		89	
49.4		13.5		54
50.2		12.3		49
51.3		12.9		52
52.0	12.8 S	11.3	91	45
52.8		10.1		40
53.0		10.4		42
54.0		10.3		41
55.4		10.0		40
57.3	13.6 S	8.9	97	36
60.3	11.0 WB	10.5	96*	42

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*Note that adult IQ's are calculated on different ceilings for Wechsler-Bellevue as compared with Stanford-Binet.

The data in the preceding table show the Binet scores substantially static at MA 13.0 ± 1 years, for the institutional period LA 34 to 61 years. The total MA scores obscure the somewhat variable performances on particular test items in successive examinations. The last MA score is from the Wechsler-Bellevue scale (verbal MA 12.0, IQ 98, non-verbal MA 10.2, IQ 96). Some subjects of this type may recollect the Binet questions, obtain the answers from normal adults, and retain these answers sufficiently well to pass some test items above their "true" intelligence, thus achieving spuriously high total scores. This artifact is only mildly reflected in Isaac's MA total scores in spite of his good verbal retention.

The first three social scores in the table are retrospective scores based on pooled history notes. The next three scores (standard examining) agree with history notes and observations for the same LA period. The decline in subsequent scores (standard examining) is construed as indicative of pre-senescent decreasing activity.

The Social Scale examining in this case brings out the reduction in the *vigor* of social expression as contrasted with the *level* of activity. It is interesting to observe that as the involution process of senescence begins, its effect is first observed in decrease of activity rather than loss of activity. Hence the scoring of items becomes relatively difficult because of the discrimination as to degree vs. amount of performance. Moreover, this introduces a reconsideration of items in the lower levels of activity which were previously assumed as outgrown but now may have deteriorated. In the present case, the reduction in total scores reflects this principle by a more careful consideration in the later examination of the items which previously were assumed to be successfully performed or else outgrown. This wider range examining discovers minus scores in the later life ages for items which seemed irrelevant in the earlier examinations. The need for this is reflected in the continuous history of this S. For example, at LA 57 years we find the following observations:

> "Realizes he is superior in many ways and dislikes being classed with the boys in his cottage. Refuses to walk with other boys, lags behind or walks with attendant. Spends most of his time reading, especially religious tracts, embroidering, paying calls, writing letters by hand and with typewriter. With age seems to be failing gradually but definitely. Likes more rest; tires more easily; gait more unsteady; memory and powers of concentration seem to be growing less effective. Scheduled to farm but does nothing but sit on grass and embroider. Used to make bed well and willingly; now so poorly done has to be remade. Formerly neat, now untidy; refuses to comb hair. Reduction in self-help and self-direction. Cottage

adjustment shows no significant change. Deterioration seems to be of simple type due to age uncomplicated by significant psychological abnormalities."

The item scores for this S reveal relatively slight influence of environmental restrictions due to institutional residence; the scores obtained while on camp vacations with relatively high degree of freedom do not materially exceed the scores obtained in the institutional environment. Indeed, these vacation trips only accent the need for continued supervision at a level of independence materially below the mental age expectation. Consequently the "+F" and "+NO" scores of standard examining, including performances assumed as outgrown, must be applied with some caution.

We have here another instance of low moron level of social competence but with intelligence test scores, especially literate and oral-verbal, approximating average normal limits. To Isaac's long history of retardation in social efficiency is now added prodromal indications of senescent deterioration. The classical definition of mental deficiency is here difficult to apply because the requirement as to subnormal intelligence is not clearly satisfied in Isaac's psychometric scores, although the qualitative psychological analysis clearly indicates mental deficiency rather than borderline state or neuropsychiatric condition. This S therefore illustrates the need of supplementing psychometric data with the measurement of social adequacy in order to avoid the pitfalls of conventional interpretations of quantitative test scores. The "insight" of the clinical psychologist is materially objectified by the direct measurement of social competence.

CASE XI. EDWARD X. *Socially inadequate, with spastic quadriplegia.*

White, male, LA 51 years; superior home—father lumber merchant, mother nurse-companion; institutional residence 38 years.

This case-study closely parallels Case X, with the addition of infantile cerebral palsy. The successive mental diagnoses have reported this boy as dull-normal, principally on the basis of some intelligence test scores. However, it appears that a diagnosis of high-grade borderline moron, or constitutional inferior, is warranted in view of the developmental social incompetence and the limited insight and judgment. It would appear that the examiners were misled by superficial verbalism and a marked practice effect of test re-administration, as well as by overcompensation for the effects of crippling.

No attempt is made to review the history of this case here (see Doll, Phelps, Melcher, 1932, Case 4), the emphasis being rather to display the hazards encountered in the use of the Social Maturity Scale without due regard for the constitutional limitations of the S.

Mental age by the Goddard version of the Binet-Simon scale was 8.6 years at LA 14, IQ 61. This rose to MA 10.0 at LA 15, IQ 71, and remained stable at this level to LA 20. The MA rose to 11.7 (Porteus adaptation of the Binet-Simon scale) at LA 25, IQ 84; then to MA 13.4 at LA 29, IQ 96; and to MA 14.6 at LA 31, IQ 104. With the 1916 Stanford version of the Binet scale the MA was 12.5 ± .2 for six administrations between LA's 33 to 44, IQ 89 ± 1. (Note by comparison with other S's in this chapter that this variability of MA is probably not due to the different scales employed.)

The use of the Social Maturity Scale for ten successive examinations between LA 39 and 46 yielded scores clustered about SA 6 years, with minimum at SA 5 and maximum at SA 9, the higher scores reflecting apparently unreliable examining.

This case is presented to emphasize the need for sophistication when administering the Scale (and also MA scales) with physically handicapped subjects. It also illustrates the practicability of double scoring (p. 292) with such subjects. The necessity for insight and caution in such double scoring is reflected in the range of scores obtained by four different examiners, all of whom were personally acquainted with this S and assigned the secondary scores on the basis of over-generous personal impression rather than on the interview data obtained from the informant. These secondary scores ranged from SA 10 to SA 17 years. The differences between standard and secondary scores ranged from 5 to 10 years. Review of records indicates that the highest scores, both standard and secondary, were not objectively warranted.

Careful re-examination at LA 51 years yielded a standard score of SA 6.8 years, and a secondary score of SA 9.5 years based on informant's interview. This examination in comparison with the detailed records of previous examinations clearly revealed the over-generous double scoring of some examiners as compared with others, and indicated a depressant effect of less than 3 years for the motor handicap.

The aura of the final examination (no deterioration apparent) describes this S as a socially inadequate person with obtrusiveness, poor judgment, limited insight, aggressive perseveration in childishly self-centered interests, and meager social participation. The double scoring allows for the motor handicaps which interfere with successful performance on certain items, but avoids overcompensation with respect to those items where motor handicap is of minor or no importance. The S is then seen to be psychologically comparable to Case X (without significant motor handicap) and of about the same MA and SA (when the motor handicap is allowed for in the secondary scoring).

This case-study reminds the examiner that many physically handicapped persons surmount their physical handicaps by favorable personality disposition, and cautions the examiner against too-generous allowance for the effects of particular handicaps. It is significant that the majority of the standard examination scores for this S are closely comparable (relatively small probable error of measure). And even on the adjusted scores allowing for the motor handicap, the variation, while marked, is nevertheless within circumscribed limits. Moreover, the results from the Social Maturity Scale examination not only reveal the severe degree of social incompetence, but the aura of the examination clearly identifies this S as essentially feebleminded in spite of the relatively high psychometric scores obtained on some examinations. Hence the examination tends to clarify the distinction between dull-normality, high-grade feeble-mindedness, and constitutional inferiority even in the presence of extreme neuro-muscular disability.

CASE XII. BROWNE X. *Borderline normal, with irregular mental development.*

White, male, LA 30 years; unfavorable heredity and early environment; institutional residence between LA 2 and LA 20 years, followed by post-institutional social independence.

This case-study is similar to Case VI, with earlier institutional care and a higher level of post-institutional social competence. It is interesting from the standpoint of the irregularity of Binet MA development, closely paralleled by a more regular type of SA maturation. The history is complicated by unstable and mildly delinquent aggressive behavior with ultimate status at respectable normal level.

From the voluminous records on this boy we present only a general sketch of the life history. He was born of "Piney" New Jersey stock in a socially sub-marginal home. The mother is reported as feeble-minded (later committed as such to an institution) whose history is replete with immoral behavior of severe degree (Binet MA 8 years). The putative father, a day-laborer, and one-time inmate of a State Prison, is also reported as feeble-minded (Binet MA also 8 years). However, in view of the sexual promiscuity of the mother, and other circumstantial evidence, it is possible that the legal husband may not have been this boy's father. Rumor points toward another man as the real father, who is also of marginal social status but perhaps only doubtfully feeble-minded, or at least of somewhat higher mental age than the putative father. The entire family history is at the level of high-grade feeble-mindedness and "sub-cultural" dull-normality, so frequently described as "degenerate stock," with numerous incidents of asocial, anti-social and immoral conduct.

LA	MA	SA	IQ	SQ
2.1	2.0 G	1.8 (r)	96	86
2.8	2.6 G	2.2 (r)	93	79
3.1	2.8 G	2.3 (r)	90	74
3.9	4.4 G	3.7 (r)	113	95
5.1	4.2 G	4.2 (r)	82	82
5.6	4.8 G	4.2 (r)	86	75
6.6	4.6 G	4.7 (r)	70	71
7.3	6.8 G	5.0 (r)	93	69
8.1	6.0 S	7.0 (r)	74	86
8.6	6.6 G	7.6 (r)	77	88
11.7	6.7 P	8.0 (r)	57	68
13.7	7.5 P	8.6 (r)	55	63
15.0	8.0 P	8.6 (r)	57	57
15.8	8.2 P	9.2 (r)	59	58
16.8	8.5 S	9.5 (r)	61	57
19.6	9.2 S	10.3 (r)	66	53
29.8*	11.0 S	23.0 (s)	79	92

* Post-institutional

This boy was admitted to a private institution for the mentally subnormal at 2 years of age because of parental neglect and unfavorable family and surroundings. At that time he presented the general appearance of average infant development which has been frequently observed in such families and surroundings. Although it was anticipated that he might show ultimate mental deficiency because of his hereditary antecedents, he was treated as far as practicable as a normal infant. He was placed in the care of the institution's resident physician, who mothered him as a normal foster child and cared for him in her quarters at the institution hospital. Some years later, as mental retardation appeared to set in, he was transferred to the general population of the institution in a cottage group suitable for his age and abilities. He then attended school and followed the usual routine of institutional care, treatment and training. During his adolescent years he displayed markedly unstable behavior with intervals of aggressive hostility. His mental and social development showed periodic fluctuation as may be observed from examination of the preceding table.

In mid-adolescence he was transferred to a colony branch of the institution for industrial training (following a period of unfavorable adjustment and limited school progress). Here the behavioral difficulties continued. His self-assertion finally led to running away from the institution at about 20 years of age.

His early post-institutional history revealed marginal progress, but with a fair degree of self-sufficiency. He succeeded in obtaining one job after another on his own resources, and in travelling about from one location to another, avoiding difficulty with the police. He capitalized his more favorable opportunities and finally became located with a man who took a warm personal interest in him and employed him as a truck driver carrying produce from a local farm district to New York City markets. In this situation he showed discretion, resourcefulness, honesty, trustworthiness and a marked improvement in conduct and adjustment.

At the home of his employer he met a girl of good family, a high school graduate, whom he subsequently married. He was a "good provider," a considerate husband and a devoted father (one child). He joined his wife's church; his domestic life was successful, including acceptance by the girl's family who had at first objected to the marriage. He died rather suddenly about two years after his marriage, a good citizen, one of the "little people" who attend well to the present and future welfare of their families.

In the later years of his post-institutional history he made contact with certain members of the institution staff which made it possible to follow his later career with some intimacy. He also cooperated in subsequent mental examination and in a self-informing administration of the Social Maturity Scale.

It is difficult to offer a convincing interpretation of this life history; the facts are therefore presented at face value. The significance of this case for present purposes is to reveal the retrospective use of the Social Maturity Scale, the close parallelism with the mental development, and the irregularities of development. This history reveals no noteworthy constitutional factors; the symptomatic picture is one of endogenous borderline mental development. The post-institutional environment showed him no special favors except as he capitalized his own opportunities. As in Case VI, there may well have been some delayed effect of the institutional period of care and training.

CASE XIII. KENNETH S. *Doubtful diagnosis (autism?, brain damage?, juvenile schizophrenia?) with delayed development.*

White, male, LA 16 years; superior social-economic status, 8 years institutional residence; father business manager, no information on mother and two sisters; 6th grade literacy.

This study is presented to show undercapitalization of aptitudes during a segment of the life span for which the general rate of progress in both mental age and social age was at about the average normal rate, although displaced about two years below normal for mental age and about an additional two years for social age. The case is complicated by several special influences, such as foreign birth, language handicap, emotional peculiarities, behavioral inertia.

Test performances were variable over a wide scope of test procedures, and growth progress while at a good rate was uneven throughout the overall period of observation. Physical development was at age, with good physique, only minor physical disturbances, and without evident neurological handicap. Initial neurological examination suggested that "the speech difficulty was not due to any form of aphasia," but there was "possibly some degenerative brain process which might progress." The last assumption was apparently denied by subsequent examinations.

In general the clinical picture is best conceived as one of possible autism (Kanner, 1944), or as one of juvenile schizophrenia (Bradley, 1941), with early delay in development somewhat compensated by later average rate of development of uneven course and variable quality. At the close of the first period of observation the Binet MA was within normal limits, with other mental test performances generally equal to or better than Binet, but with social competence still seriously retarded at about thirty to forty per cent below normal. The clinical indications throughout the total period were somewhat inconsistent and inconclusive, so that a positive diagnosis could not be rendered.

The extensive history and the multiplicity of mental and physical examinations on this boy need not be abstracted here except to repeat that his progress, while somewhat delayed during the initial period of observation, was excellent during the intermediate period, and fell within the limits of normality at the close of the period, with social competence toward the upper limit of mental deficiency. Although the capitalization of intelligence for purposes of social competence was retarded about two years throughout the period of measurement, there was a rough parallelism between the MA and SA growth curves. Over the period as a whole, mental age was successfully capitalized for school progress, and behavioral adjustment was materially improved. Many of the indications suggestive of juvenile schizophrenia still obtained at the time of dismissal from institutional residence.

The successive mental ages, social ages, and corresponding quotients are presented in the table. In order to indicate the variability of the data in relation to the examiners the identity of the examiners is indicated in the table. (F represents female examiner, M represents male examiner, and the digits represent the identity of the examiners. The purpose of these entries is to offer some information on the relation of the personal equation of the examiner to the variability of the measures.)

LA	MA	SA	IQ	SQ	MA Ex.	SA Ex.
8.0	—	4.0	—	50	—	F 1
8.3	5.8	3.6	70	43	F 1	F 2
8.8	—	3.6	—	41	—	M1
9.4	6.5	3.1	69	33	M2	M2
10.0	8.0	4.8	80	48	F 3	F 3
10.6	8.5	6.8	80	64	M2	M2
11.9	9.3	7.0	78	59	M2	M2
12.6	10.3	9.3	82	74	M2	M2
13.1	10.6	9.0	81	69	F 4	F 4
14.3	11.3	8.5	81	59	F 4	F 4
15.2	12.1	10.0	86	66	F 5	F 5
15.9	12.8*	10.0	92	63	M3	M3

*Wechsler-Bellevue (Verbal 13.0, Performance 12.5) Other MA's are 1916 Stanford-Binet.

If the data in this table are plotted and smoothed curves drawn, it will be seen that the general trend of both the MA and SA curves is substantially parallel to the corresponding normative curves, but displaced about two years for MA and about four years for SA. The SA curve is more variable than the MA curve, which is interpreted as reflecting the unstable behavior of this boy in relation to his emotional and attitudinal characteristics. The SA curve appears to be somewhat more sensitive to variations in behavior than is the MA curve, while the latter is a more stable measure of presumptive innate aptitude as contrasted with its overt expression.

This case is presented as indicating the value of the Social Scale for supplementing psychometric measurements, and as revealing a handicap in social competence greater than might be expected from the mental competence, but for reasons not clearly elicited.

CASE XIV. FRANK L. *Borderline moron with delayed development.*

White, male, LA 30 years; inferior social-economic status—father foreign-born, laborer, mother foreign extraction, six siblings apparently normal; institutional residence 21 years.

This study is presented in comparison with Case XIII as an instance of delayed development, but with better capitalization of mental age for social competence. When first seen (at LA 7 years) this boy was diagnosed as a potential imbecile. He was subnormal in physical development, walked unsteadily, was unable to climb into a chair or to go upstairs unaided. The etiological history was negative for birth factors; the mental retardation was attributed to cerebrospinal meningitis at 2 years of age. The family status was somewhat marginal, but there was no suggestion of familial mental deficiency. The neurological signs, behavior picture and history of delayed development were consistent with presumptive etiology of cerebrospinal meningitis.

The child was first admitted to a state colony for low-grade feeble-minded males and transferred about two years later to a private training institution. The history of this case reveals nothing of special moment except the protracted period of delayed mental development and the superior capitalization of mental development for social competence. Behavior throughout the period was favorable, and school and occupational progress were consistent with the mental growth. The data for mental age and social age are presented in the table. The first four entries for mental age were obtained from the Porteus modification of the Binet-Simon scale, the subsequent entries from the 1916 Stanford, and the final entry from the Wechsler-Bellevue. The first entries for social age were derived from retrospective scores based on history notes. The MA and SA entries prior to LA 10 refer to examinations prior to transfer to the private institution.

Note that the first two entries yield IQ's about 40 at LA 7 and 9 years. From LA 9 to 12 years the rate of progress is somewhat above average (3.5 years of MA in 2.9 years of LA, interval rate 120, or three times the initial IQ). During the next period, LA 12 to 20 years, when mental growth might have been expected to be substantially complete, the data show 2.6 years of progress over a period of 7.4 years of LA, or an interval rate of 30. The mental age is substantially static after LA 20 years.

LA	MA	SA	IQ	SQ
7.4	2.7	3.7 (r)	37	50
9.3	3.7	5.0 (r)	40	54
10.0	5.0	—	50	—
10.5	5.3	—	50	—
11.0	6.0	—	55	—
11.5	6.3	7.2 (r)	55	63
11.8	6.5	—	55	—
12.2	7.2	—	59	—
12.7	7.2	—	57	—
13.7	7.3	8.0 (r)	53	59
14.6	7.7	—	55	—
15.2	8.0	9.0 (r)	57	59
16.3	8.3	—	59	—
17.5	8.7	9.7 (r)	62	55
18.6	9.4	—	67	—
19.3	—	10.4	—	54
19.6	9.8	12.0	70	61
20.4	—	11.3	—	55
20.7	9.8	10.8	70	52
21.8	—	13.2	—	61
22.7	—	11.8	—	52
23.2	9.5	12.0	68	52
25.5	10.3	14.7	74	59
29.5	11.2*	14.7	84	59

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*Wechsler-Bellevue (Verbal 10.7, Performance 12.0)

The social ages during the period of retrospective scoring are substantially one year above the mental ages. This disparity increases to approximately four years during the period of early adulthood. The social ages therefore seem to be consistently above the mental ages and reflect continuing capitalization of mental growth with relatively accelerated capitalization in the later period of observation.

During the last 12 years of the period of observation this boy has been repeatedly considered as possibly suitable for parole with prospect of independent social adjustment. However, such action was not considered advisable in the light of somewhat feeble personality organization, limited scholastic attainment (for example, inability to make change), rather low degree of social insight and judgment, poor health, and poor family support. At LA 23 years he was considered for CCC placement but was not accepted because of mental subnormality. This boy continues in institutional residence as a well-adjusted high-grade moron and a borderline prospect for ultimate social independence under sufficiently favorable environment support.

CASE XV. BERT T. *Middle-grade moron, with aphasia and other complications.*

White, male, LA 28 years; inferior home (no family information); institutional residence 16 years; non-literate.

This case is clinically somewhat confused, but is presented to show the relevance of the measurement of social competence to the total evaluation. This boy was initially seen in consultation at 10 years of age, at which time a diagnosis of mental deficiency was rendered and he was subsequently admitted to institutional care. The paranatal history showed nothing unusual. The available birth history was uneventful. Walking and talking were delayed about one year. Mild choreiform movements were noted at the time of institutional commitment, with indications of obscure neurological involvement. Physical development was advanced for his age, posture was poor, tonsils diseased, teeth in bad condition, defective speech, hearing handicap. Initial school progress looked promising, but subsequently proved very limited except in occupational pursuits.

The hearing handicap was noticed after about two years of institutional residence. With proper allowance for this and other disabilities, the mental test performances were appreciably improved. In a long succession of mental examinations the Binet MA's were estimated at about 5 to 6 years; this was finally recognized as incorrect in view of his favorable aptitudes in spite of special limitations. The revised estimates varied between MA 6 to 10 years, centering most commonly at about MA 8 to 9 years. In other (non-verbal) mental test performances, his scores rose to at least average adult level, but with uneven performance from one test to another, perhaps because of the examiners' difficulty of conveying unequivocal instructions. The non-verbal test performances in the later history centered around 13 to 14 years, with qualitative indications of probable normality.

Audiometric measurement showed hearing loss of about 50 per cent in both ears; competent aural examination suggested that this was probably of nerve origin. Speech continued cluttered during the period of observation, being of the order of cleft-palate type of speech, with enunciation very difficult to comprehend.

Occupational progress in school and at work was favorable but within mental deficiency limits. Behavior was distinctly unstable, insight and judgment were poor, level of aspiration was beyond apparent aptitudes, conflict developed in the environment because of resentment toward institutional restrictions and the lack of social freedom. Behavior was somewhat aggressively oriented heterosexually, with marked tendency toward self-assertion in respect to this and other conventional behavior. Behavior was somewhat disturbed, with mood spells due to conflict between his aspirations and his environmental frustrations.

Bert was finally dismissed to the care of his father, with marked misgivings as to his probable success, particularly in respect to conduct. The initial reports on parole were favorable (later discontinued).

The results of examination in respect to mental age are not presented because of the impracticability of test administration for the Binet scale and their disparity with the wide variety of other tests employed over a rather long period of observation. We may repeat that Binet MA was ultimately estimated at about 8 to 9 years, other test performances centering ultimately around 13 to 14 years.

Results from administration of the Social Maturity Scale are presented without tabulation. The Scale was first employed at LA 20 years. Three administrations over a period of two years yielded SA's at 10.8, 10.8 and 10.6 years, the last being a retrospective score based on pooled history data. During the next five years, at approximately yearly intervals, the SA's were 13.2, 13.3, 12.6, 12.9, and 11.2 years. These SA's yielded quotient scores of approximately SQ 50 ± 5. A series of retrospective SA scores was obtained from pooled history data for the period LA 10 to 20 years. Seven such scores (at yearly intervals except LA's 11, 13 and 14) yielded social quotients centering closely about 50, with minimum at SQ 42 and maximum at SQ 57. The last of these retrospective scores was a very close approximation to the first of the standard scores administered the following year.

The results from the Social Scale were influenced by the several special handicaps to social expression such as in hearing, speech, behavior, and the consequence of these in the general aura of social expression. Most of these examinations were also "double-scored" in order to estimate the influence of these handicaps. Such double-scoring elevated the scores by approximately 1 to 2 years, but of course it was difficult to allow for the aura, or non-specific influence, of these limitations to self-expression.

In general summary of these data it seems fair to place the verbal mental age at not more than 9 years, the non-verbal mental age at about 13 years, the de facto SA at about 12 years, and the optimum SA (handicaps allowed for) at 14 to 16 years. It should be noted that the estimation of verbal MA makes as much allowance as practicable for the apparent aphasia. And this is also allowed for as practically as possible in the adjusted SA scores. In spite of the relatively superior performance test scores, and in spite of the aphasia and the accompanying constitutional and expressive handicaps, the case seems rather clearly outlined as a middle-grade moron with non-verbal proficiency and definitely subnormal social competence. Occupational success, while relatively favorable, was limited to unskilled pursuits or to the semi-skilled level of common labor (garage helper).

As to the aphasia itself, this was diagnosed as of the expressive-receptive type based on the classification and tests of Weissenberg and McBride (1935).

CASE XVI. KEITH C. *Organic impairment simulating mental deficiency.*

White, male, LA 7 years; superior home environment.

This study is presented as a contrast to Case XV and to show the hazards of clinical diagnosis independently of the measurement of social competence. (For a more complete report see Fay and Doll, 1949.)

This boy was seen in consultation. The presenting complaint was one of poor school progress coupled with statement by the mother of "slow development in recent years." He had recently been examined by a psychologist and a pediatrician at the request of his school counsellor. The mother stated that she was told the child was an idiot, that she should place him in a local State Colony, and "forget that he had been born."

The examining specialists confirmed that they had found the boy feeble-minded, of imbecile grade, and had recommended institutional care. Their diagnosis was based on the developmental and school history, tests and observation of the child (employing conventional psychometric and pediatric procedures), and the clinical appraisal of these results. A Kuhlmann-Binet MA of 2.5 years had been obtained. This was confirmed by failure on the Goddard formboard, and on a series of preschool tests. During the administration of these tests the child had appeared unable to concentrate, was distractible, established only limited rapport, and responded poorly beyond the behavior level of infancy.

When first seen at the mother's referral (following the previous appraisal) this boy's general deportment suggested nothing very unusual. He showed ordinary interest in the surroundings, played well with (and was accepted by) a normal boy of his own age who happened to be present, and made a favorable impression on the lay members of the clinic staff. Language deficiency was not at first apparent; he seemed to have fair vocabulary and to use good sentence structure in making casual observations. He responded readily to oral requests, but on closer observation his speech seemed to be rather spotty and he seemed to turn to his mother for cues.

In the transition from informal to formal examining a marked change in his behavior was noted. He now became markedly inhibited and inaccessible (interpersonal communication no longer sustained). He clung to his mother, lost interest in the surroundings, seemed distracted and resistive, would not cooperate. Although the mother stated that he could count to 10, the examiner was unable to elicit any counting process. Attempts at drawing and discriminative form perception appeared to be at about a 2-year level. He seemed bewildered and confused by the formal aspect of the examining situation; all previous indications of normal behavior now seemed denied. It seemed as if he was responding negatively because of conditioned cathexis toward social pressure. It was then observed that his distractibility was well directed, although not conforming to the wishes of the examiner. His responses to verbal comments showed poor linguistic retention, with responses directed towards the ends of sentences, and with more meaningful response to nouns than to other parts of speech.

The developmental history as reported by the mother revealed a difficult birth with high forceps delivery, excessive cranial molding and deficient animation. The neonatal and early childhood history yielded nothing unusual; motor development was not appreciably retarded; development of toilet habits and expressive functions (as reported) were about at age, except that the development of language was markedly delayed and the prospect of profit from academic instruction seemed poor even prior to school entrance. Further details of the developmental history suggested a presumption of congenital aphasia (limitation in maturational language functions), poor aptitude for profit from academic instruction, and generalized symptoms of social frustration.

Administration of the Social Scale yielded SA 6.8 years at LA 7.0 years, SQ 97. (With double-scoring allowance on four communication items failed within his LA expectation, the SA rose to 7.6, SQ 110.) These results clearly denied the likelihood of mental deficiency and suggested organic impairment as a simulative equivalent.

Performance on the Kuhlmann-Binet yielded expressive MA at 2 to 3 years. There was conspicuous failure on other standard mental tests at the preschool level. The examination showed poor repetition of digits and sentences except for end syllables, and faulty apprehension of language form and content. No physical stigmata of subnormality were observed, no marked evidence of motor handicap, no indications of pathology except as reflected in the linguistic requirements of the testing situation. There was no direct evidence of autism or schizophrenia. Emotionally conditioned behavior seemed a clinical likelihood.

A tentative diagnosis of developmental aphasia seemed warranted but the examination was not particularized in this direction. Nor were visual and auditory tests applied at this time (both areas subsequently found to be impaired). There was a hypothetical presumption of paranatal intracranial damage, with mild neuro-muscular involvement, and developmental intellectual confusion associated with mixed laterality and faulty development of language. These indications were subsequently confirmed by neurological consultation. Likewise the contraindications for mental deficiency were confirmed by successful clinical teaching oriented toward his particular disabilities.

CASE XVII. BERNICE N. *Blind moron with behavior disturbance.*

White, female, LA 29 years; superior home—father minister, mother no information, four normal siblings; institutional residence 24 years.

This child was first seen clinically at 5 years of age. At that time she was described as severely handicapped in vision because of congenital cataracts. The history reported precipitate delivery, endocarditis, superative otitis media, marked nervousness bordering on choreiform movements. There was also a history of early scarlet fever, but specific details were lacking. Later history data suggested maternal rubella (second month of gestation) as the presumptive etiology, but the child's condition might be related either to the precipitate birth or to the sequelae of scarlet fever.

Throughout her long institutional history this child has showed numerous physical ailments, very difficult behavior, and a good many characteristics bordering on psychopathic personality. She received a great deal of medical attention, especially in respect to vision, as well as intensive attention from the standpoint of training and behavioral adjustment. The net results show comparatively little progress in respect to these limitations except that her mental age growth was rather marked, especially between LA 9 to 18 years.

LA	MA	SA	IQ	SQ
5.3	2.3 P	2.5 (r)	43	45
6.7	3.3 P	2.5 (r)	49	37
8.3	4.3 S	—	52	—
8.3	4.3 H	—	52	—
8.8	—	2.8 (r)	—	32
10.3	4.6 H	2.6 (r)	45	25
11.3	5.4 H	3.0 (r)	48	27
13.7	6.2 H	2.6 (r)	45	19
15.0	7.0 H	2.8 (r)	50	19
16.4	7.7 H	2.8 (r)	55	17
17.5	8.7 H	3.7*	62	81
18.4	8.3 S	4.8	59	26
19.6	8.8 H	2.7	63	14
20.4	—	4.3	—	21
21.4	8.2 H	4.3	59	20
22.6	—	5.2	—	23
23.5	8.2 H	4.1	59	17
24.6	—	4.2	—	17
28.1	8.2 H	4.2	59	17

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*4.6 if stable, 5.9 if sighted, using double-scoring.

The study is presented primarily to show the handicap of blindness as a limitation to social competence in relation to mental deficiency. However, the undercapitalization of mental age for social competence is influenced by the handicapping dispositional traits in addition to very seriously impaired vision. It should be recalled that blindness, while serving to depress social competence among normal subjects, and apparently rather more so among mentally deficient subjects, does not always produce this effect. While blind subjects in general show about 40 per cent undercapitalization of intelligence for social competence (p. 527), many individuals show no such consequences of blindness. In the case of Bernice, while vision was impaired to the point of practical blindness in the later period of observation, during the early period she had sufficient vision to recognize objects, although with considerable difficulty.

The progressive record of MA and SA scores is presented in the table. The mental scores are principally derived from administration of the Hayes modification of the 1916 Stanford-Binet for use with blind subjects, but the results from other forms of the Binet scale are not materially different at about the same time of administration. (At LA 8 years the unmodified Stanford and the Hayes modification produced identical scores. At LA 18 years there was a slight reduction in the unmodified form, but this examination was not fully completed and is equal to the later results from the modified scale.)

The results from the Social Scale are recorded as retrospective scores based on pooled history data prior to LA 17 years. These scores are noticeably consistent at SA 2.5 to 3.0 years over a period of 11 years in spite of the interim MA progress. The standard examination scores rise to SA 4 to 5 years (with one exception) and are maintained at that level from LA 17 to 28 years. (It is uncertain whether the difference between the retrospective scores and the standard scores is due to differences in scoring procedures, or to maturation, or to greater leniency on the part of the examiner in the interview examination as compared with history scoring.)

At any rate, the SA's are seen to be materially below the MA's throughout the period of observation and increasingly so as LA advances (the social scores remaining substantially static while the mental scores show material progression). How much of this retardation in SA as compared with MA is due to the visual handicap and how much to the personality and behavior disturbances is not altogether clear. Three examiners, using the technique of double scoring, found a depressant effect of from 1 to 3 years attributable to the visual handicap. The examiner who found the largest difference also found one year of difference attributable to the personality disturbance.

This S, in spite of visual handicap, ultimately attained the MA status of high-grade mental deficiency without appreciably exceeding the upper SA limit of high-grade idiocy. It should not be inferred that all instances of visual handicap will follow this pattern, since for this S the degree of undercapitalization of intelligence is materially influenced by personality factors not directly evident from psychometric measurement. Obviously, affective and conative influences play important roles in social maturity and the unique influence of personality influences is extremely difficult to isolate. (Cf. Case V., Chapter 8.)

CASE XVIII. WALTER S. *Low-grade moron with early adult deterioration (dementia praecox?).*

White, male, age 44 years; superior social background; institutional residence 30 years (plus two previous periods of indefinite dates).

Mental deficiency is sometimes accompanied by mental disturbance (as mildly evident in some of the preceding cases) and is sometimes followed by deterioration. Typically, the mentally deficient are not mentally disturbed and the condition does not result in deterioration except in the senescent stages. And typically the life history of the mental defective is of significantly shorter span than that of the average normal (p. 559). The present case is offered as an instance of early adult deterioration amounting to dementia praecox and shows the parallelism between mental and social deterioration. It is of some interest to inquire whether the results from mental measurement are more sensitive than those from social measurement as forecasting the trend of deterioration, and contrariwise for delayed development. Inferences in respect to the latter query may be drawn from some of the earlier cases, and on the former query from the present case. It should be noted, however, that such inferences are somewhat hazardous in the present state of knowledge since they seem to be somewhat individualized.

Walter comes of good family. The etiology both for mental deficiency and for mental deterioration is obscure. The available birth history is negative except for the statement that the mother was an invalid before Walter's birth. Maternal age was 29 years, paternal age 25 years. Walter is the second-born of three living children, two of whom were not abnormal. The pathological history is likewise apparently negative. There is a history of measles at 5 years of age, but without detailed information. The boy was described at first observation as slightly nervous. He had attended public school for 5 years, and two residential schools for mental defectives for unstated periods. He was able to read and write and to use a typewriter, but was unable to do arithmetic. In general, the developmental history was either lacking or negative.

At the beginning of the period of observation here reported, Walter seemed like a typical low-grade moron. There was nothing particularly noteworthy in the early mental, physical, and educational examinations and cottage reports, nor was his behavior at that time unusual. Two years after the initial mental examination he talked incessantly and showed difficulty in concentration. At that time (LA 20 years) cottage reports stated that he was "going backward rapidly." This seemed to be accentuated by the death of a fellow pupil of the institution who was a close friend and over whom he had had some oversight. Overt evidence of deterioration continued apace and a persistent habit of constantly looking at his feet in standing posture was already noted. This habit continued as a compulsive neurosis during the remainder of his life to date.

By the end of his 20th year there was further evidence of mental and physical regression. At this time he had lapsed into unclean personal habits, took no interest in anything, and did no work. He became untidy in his personal appearance, developed poor moral habits, did nothing but walk around and indulge in constant verbigeration.

LA	MA	SA	IQ	SQ
17.8	8.2 G		59	
18.1	8.2 S		59	
18.3	7.0 G	6.8 (r)	50	37
19.3	—	6.5 (r)	—	34
19.9	8.2 G	—	59	—
20.3	6.2 S	4.8 (r)	44	24
24.2	4.3 P	2.6 (r)	31	11
28.3	4.0 P	3.1 (r)	29	12
29.3	2.8 KB	—	20	—
30.1	2.4 KB	—	17	—
31.0	2.4 KB	3.7 (r)	17	15
32.1	1.8 KB	—	13	—
34.3	—	3.7 (r)	—	15
35.8	F*	—	—	—
37.6	—	3.2	—	13
38.6	—	2.6	—	10
39.5	—	2.5	—	10
40.7	—	3.8	—	15
41.6	1.8 KB	4.6	13	18
42.7	—	4.8	—	19
43.4	2.4 KB	3.6	17	14

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*No rapport obtainable.

These observations were confirmed in successive mental and physical examinations. Psychiatric report indicated a diagnosis of compulsion neurosis with poor prognosis. No physical or social basis was elicited to account for his condition. Shortly afterward he regressed to drooling. He developed an obsessive interest in his belt, in respect to which he required and received a good deal of humoring. These two mannerisms (attention to his belt and head down posture) have continued up to the present. Later psychiatric and neurological examinations yielded nothing in the direction of organic or functional disturbance.

The later history continues of the same order, with some periodic improvement followed by lapses. These variations are faintly reflected in the examination data and serve to explain the somewhat unstable character of the test data here reported. However, such variability is within narrow limits as compared with the overall trend of the deterioration process. The data for MA and SA are presented in the table.

It was necessary to resort to the Kuhlmann-Binet as the deterioration approached the infantile level. At one examination (LA 35 years) sufficient cooperation could not be induced to conduct the examination. It will be noted that the MA regressed from MA 8 to MA 2 years by somewhat uneven stages. Obviously these mental ages are not adequate representations of his "normal" aptitude, since the level of conversation outside the formal examination showed definite remnants of higher levels of performance, but not under useful voluntary control. There is, of course, the possibility that some deterioration had already set in before the beginning of this period of observation. Color is lent to this hypothesis by Walter's conversational aptitudes, not only at that time, but even now, when his voluntary attention is under favorable control.

The results for SA roughly parallel those for MA. (The results prior to LA 35 years are based on retrospective scoring from pooled history notes.) These suggest that from LA 18 to 28 years the deterioration was about parallel in SA and MA; in the later years the SA was fairly steady at a level somewhat above the mental age expectation. This is partly accounted for by the difficulty of obtaining complete cooperation in the mental test situation. It is of interest to observe a slight recovery in SA after LA 40 years as compared with the period between LA 24 to 40 years.

This study is enlightening as illustrating the use of the Scale for the measurement of social deterioration as contrasted with social maturation (cf. Case IV, Chapter 8). Although Walter is mentally deficient, and his deterioration was fairly early and rapid, the picture is not unlike that seen in the normal involutional stages of senescence and the deteriorated stages of various illnesses and disabilities which produce infirmity. The dependence of social competence on mental competence is also clearly revealed in relation to deterioration as it has elsewhere been revealed in relation to developmental maturation.

CASE XIX. BERTHA L. *Psychotic episode, with marked deterioration, followed by recovery.**

White, female, LA interval 18 to 20 years; Austrian-Slovakian descent (father tool dresser); high-school literacy; hospitalized for treatment of mental disorder.

This study illustrates the use of the Scale for the measurement of social competence in a mental patient prior to, during, and after a serious psychotic episode. The overall history relates that Bertha was eighth-born of twelve children. In the family she was considered "always slow to grasp things," and was referred to by her brother as "dummy." However, she graduated from high school at LA 17.3 years. She was described (as of that time) as popular and as having normal heterosexual interests. She represented a youth society as delegate at two meetings at distant cities, attended many social functions, drilled girls for Slovakian field days. But she was somewhat "run-down," unable to obtain work, irritable when her family tried to keep her at home for rest.

She did some postgraduate high-school study, and worked as a doctor's assistant for three months. She then had a "nervous breakdown" and was hospitalized at a private mental hospital for a period of three weeks, followed by a week at home. She moved to a small town. Here she was lonesome, depressed and nervous. She was obliged to take sedatives, would weep at seeing former friends, was episodically hypomanic, excessively talkative, nervous, unmanageable, exhibited numerous mannerisms, did not rest properly. Her habits and attitudes were disturbed, as evidenced by her routine of living, antagonism toward her sister, laughing and crying without apparent cause, aimless roaming, and excessive noisiness.

She was then admitted to a State Hospital for observation and treatment. Two months after hospitalization she became completely withdrawn from reality, answered questions irrelevantly and in monosyllables, was uncooperative, exhibited auditory hallucinations.

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*Adapted from an unpublished study by E. A. and E. E. Doll (see p. 561). All of the examinations on this patient were conducted by Katherine P. Bradway.

Following a six months regimen of medical treatment she made such a marked recovery that it was possible to dismiss her from hospital care. She was no longer hallucinated, became interested in her surroundings, was occupationally useful, tidy, quiet and cooperative with good insight and judgment. She remained at the hospital as a dentist's assistant while on grounds parole. A year afterward she was described as well-adjusted, neat, emotionally stable, without delusions or hallucinations, attractive personality, working as a housemaid. She was discharged as recovered and in good mental condition.

A series of six Social Scale examinations was made at the time of discharge by a single examiner employing a single informant (her married sister). Five of these were retrospective examinations based on the informant's recollections for the period preceding and during the psychotic episode; the sixth was a standard examination as recovered. The data from these examinations are presented in the table. Mental test data were not available. The details of the neuropsychiatric observations and medical treatment are here omitted.

LA	SA	SQ
18.3	17.0 (r)	93
18.6	5.8 (r)	31
18.7	4.7 (r)	25
19.0	0.4 (r)	2
19.2	11.7 (r)	61
20.0	19.2	96

It is of particular interest that at the end of 2 years of mental illness Bertha had more than regained her prepsychotic SA. While her expressive social competence was regressing toward the neonatal level, her maturational potential nevertheless progressed to an even higher level and degree of expression than she exhibited at the time of onset of the mental disturbance. The significance of this result is of course to some degree disturbed by the probable error of the measure which cannot in these circumstances be clearly allowed for. It is possible that the initial SA was already somewhat depressed as a prodromal symptom, since it might have been expected from the description of this girl as a high school graduate at LA 17 that her social age would have been somewhat higher than that here recorded, and perhaps high enough to allow for the apparent increase. It would have been helpful had another retrospective scale been administered prior to LA 17 in order to avoid the possible prodromal aura and also at a later age to further substantiate the apparent recovery.

SUMMARY

These clinical illustrations have dealt mainly with longitudinal studies of institutionalized mental defectives. Obviously the Scale is correspondingly applicable in the clinical study of other types of deviates, and to normal subjects in many settings. Some of these possibilities have been set forth in Chapter 12, and some of the practicabilities have been reviewed in Chapter 13. The interested reader will readily appreciate the clinical potentialities of the method from the group studies without the necessity of extracting illustrative instances from their underlying data.

Likewise, the manifold ramifications of the variant procedures (Chapter 7) have been only incidentally incorporated in this chapter. Here again the clinical implications are presumably self-evident. We need note only that the Scale affords a type of instrument that permits human appraisal where other techniques are inapplicable because of the S's physical, mental or social inaccessibility.

Finally, we hope it is clear that the Social Maturity Scale affords a measurement of holistic functioning in social situations which is the presumptive need-goal of individual striving. For this purpose the Scale affords an instrument which reveals the social-product capitalization of the principal components of human conduct and adaptation. This global use of the Scale not only serves to provide an initial orientation in casework, but almost gratuitously furnishes speculative leads for specific diagnostic evaluation. To this end the categorical analysis of item performances is particularly revealing in different types of cases in relation to the numerous variables involved. While we have not very specifically expounded this clinical aspect of categorical analysis, we hope it has been made evident that such analysis may be fully as important as the evaluation of total scores.

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EPILOGUE

Am I a stoker of dead yesterdays
About whom cling the cellar damps of age,
Or am I youth's own soul, whose winged ways
Lead on toward heights above this mortal stage?
I wish I knew. Today my mind is tired,
My spirit twilight-dull; I feel like one
Who must stand still while others hasten, fired
With dreams, along the rosy paths to dawn. — Elias Lieberman

The essential standpoints of this book may be briefly summarized as follows:

1. The Vineland Social Maturity Scale is directed toward the social appraisal of the individual in his functioning altogetherness. It has two facets: (a) as a measurement technique in the field of scientific inquiry, and (b) as an instrument for overall appraisal of the individual as a person (cf. James McKeen Cattell, "Mental tests and measurements," *Mind*, 1890, 15: 373-381).

2. Social competence is not a basic process (like sensation), nor a recreative function (like memory), nor a characteristic (like personality), but rather (like intelligence) a consequence or behavior-value (cf. H. Piéron, "The problem of intelligence," *Pedagogical Seminary*, 1926, 33: 50-60). Social competence is here conceived as the *sum total purposive effect* of correlated aptitudes and integrated experiences.

3. Hence social competence is not something that can be literally "measured," nor even very successfully categorized. For its quantified estimation we propose a systematic hierarchy of performances and the net sum of these performances, a classification of progressive adequacy rather than a linear calibration of organismic reactions or anthroponomic features (cf. Kimball Young, "The history of mental testing," *Pedagogical Seminary*, 1924, 31: 1-48). And as to its operation we have indicated some of the component areas and stages, but have also called attention to the artificiality of such dissectional specification.

4. In the absence of physically linear properties we have substituted the age-norm of item performance as the basic unit of classification. Such empirical "measurement" has obvious practical virtues, but should not be confused with the properties of direct physical mensuration (cf. Edwin G. Boring,

"The logic of the normal law of error in mental measurement," *American Journal of Psychology,* 1920, 31: 1-33).

5. The sum of these item scores (the raw total score) may be expressed in the same terms (normative age) and denominated as a "social age" score with reference to the genetic content. This (SA) score may in turn be converted to a ratio score (SQ), or to some equivalent statistical constant.

6. This logic follows that of the year-scale formulations of the Binet-Simon tests (cf. Alfred Binet and Th. Simon, "Méthodes nouvelles pour le diagnostic du niveau intellectuel des anormaux," *L'Année Psychologique,* 1905, 11: 191-244), supplemented by certain refinements of standardization and a more candid exposition. Neither the logical nor the statistical premises should be overlooked in the end product. While such insight need be no serious requirement of the technician who employs this scale, it remains a continuing issue for those concerned with the theory, structure, validation, and practical interpretative ramifications of the method. In this regard heed should be paid to the tentative status of both the principles and the procedures (including population sampling) inherent in the construction and standardization of this scale, which in the present state of our knowledge are of doubtful soundness in spite of practical warrant.

7. Both scientific and professional psychology risk losing sight of the individual as a person in assaying his component attributes. As the whole is something more than its parts, having a unique quality of its own (its idiosyncrasy), so the person as a social unit stands above the mere quantitative synthesis of his distinctive characteristics, with the holistic pattern of his attributes affording a distinctive psychobiologic supraordinate integrity. This scale aims to appraise such overall expressiveness of the individual. With due regard for the cultural opportunities, social settings, personal aptitudes, and disabilities which surround its expression, it aims at an evaluation of adequacy not otherwise obtainable by similar means.

8. As K. Young has observed (*supra,* p. 18): " . . . Binet's work, more than any other, directed the current of modern psychology toward the study of the individual as a whole, to a view of the province of psychology as decidedly practical and as touching distinctly upon man's social life and behavior." But neither Binet, nor those following or preceding him, had recourse to a systematic criterion of that social behavior which

the Binet-Simon scale sought to evaluate in terms of its intelligential preconditions or requirements.

9. The Vineland Social Maturity Scale endeavors to obviate this lack. It does so by the same method of attack employed by Binet and Simon, but with a significant difference in procedure, namely, the method of report rather than the method of testing. This novel difference, we think, constitutes a major asset rather than a shortcoming. By not requiring the presence or the cooperation of the subject of the examination it broadly extends the scope of human appraisal.

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Date Due

Due	Returned	Due	Returned

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MEASUREMENT OF SOCIAL
TITLE
COMPETENCE

DATE DUE	BORROWER'S NAME